

Forest Recreation Monitoring – a European Perspective

Tuija Sievänen, Arne Arnberger, Jeffrey Dehez, Neil Grant, Frank S. Jensen and Hans Skov-Petersen (eds.)



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Abstract			
<p>COST Action E33 ‘Forest for recreation and nature tourism’ (FORREC) is a network of researchers and practitioners working in the field from all around Europe. The work was divided into three working groups. The aim of Working Group 2 (WG2) was to evaluate the state of the art of the present information basis for recreation in European countries. This report is an output of WG2. The focus of WG2 was on recreation monitoring, i.e. the information basis developed continuously and systematically to offer a national, regional or site-specific coverage of information, and information on changes over time. Recreation monitoring provides the information base for planning and management to achieve equal opportunities for close-to home outdoor recreation across Europe and among different social groups within individual countries. Information on recreational opportunities and capacity is essential for successful and sustainable nature tourism. Thus, the European Union needs comparable and consistent information on the recreational opportunities and on the demand for outdoor recreation and nature tourism within European countries. COST E33 WG2 recommends actions for developing better recreation information basis. These actions include recommendations for individual countries to produce recreation information which is comparable between regions and between countries, and which is consistent over time. Secondly, recreation information is needed to feed into indicators and standards for proactive planning for sustainable forestry, for allocation of resources and funding, and for successful management of forest resources in general. Thirdly, in order to achieve the goal of producing comparable recreation information across Europe, actions are needed to develop an advanced, harmonised methodology for a standardised approach. A standardised outdoor recreation monitoring programme at a European level is highly recommended.</p>			
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Preface

This report is the main output of COST Action E33 'Forest recreation and nature tourism' Working Group 2 (WG2). COST Actions offer an opportunity for networking and sharing common interest in specific topics. COST Action E33 has offered European experts on forest recreation and nature tourism an opportunity to gather together regularly for the first time. COST Actions provide a great forum for processing state of the art reports and reviews in specialist fields of research and practice. Across a number of meetings, twenty-one countries and around forty individuals participated in the work of WG2 (see Appendix 3), which focused on recreation monitoring. WG2 members were mainly researchers and scientists from universities and forest research institutes, although some recreation managers working with forestry agencies and state administration also participated.

COST E33 (2004-2008) was coordinated by Simon Bell from the UK, and Working Group 2 was chaired by Tuija Sievänen from Finland. The countries that participated were; Austria, Belgium, Croatia, Cyprus, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Lithuania, Latvia, the Netherlands, Norway, Poland, Slovakia, Sweden, Switzerland and the United Kingdom. COST Action E33 organised seven meetings and WG2 held sessions at each: Edinburgh (the UK) November 2004, Larnaka (Cyprus) April 2005, Bad Kohlgrub (Germany) November 2005, Jurmala (Latvia) April 2006, Poprad (Slovakia) October 2006, Bordeaux (France) April 2007 and Bielowieza (Poland) October 2007. The final conference of COST E33 is to be held in Hämeenlinna, Finland in May 2008.

The aim of WG2 was to review the state of the art in recreation monitoring across Europe. The working process included introductory presentations from all countries, and presentations on different topics by members and countries that have experiences in different types of recreation monitoring. A special guest presentation was given by Dr. Ken Cordell from USDA Forest Service. Dr. Cordell is a leader of the present national recreation demand monitoring and assessment unit in the United States. The second section of work included reporting and documenting country experiences of recreation monitoring. A range of materials were collected, including, country reports, lists of nationally important literature (Appendix 1 in this report), lists of recreation terms in different languages (Appendix 2), four different survey questionnaires covering the methodologies employed for both recreation demand and supply inventories. This report summarises all these materials provided by WG2 members, however it is likely that the materials obtained are not all encompassing. Therefore, this report, and consequently the conclusions, are certainly not 'the whole truth' but represent the best output possible given the information provided by this group. These potential shortages and limitations should be considered whilst reading and using this document.

During the process of collecting information, the members of COST E33 WG2 consulted a great number of their colleagues and others experts in their own countries. We would like to thank all those people whose contributions made it possible to produce this report and the research institutions and forest agencies who allowed their employees to participate in the COST Action. Finally, we would like to thank all our colleagues who organised the meetings during these four years and made it possible to work together with such good facilities and wonderful surroundings, and, of course, the COST Office for providing financial support for travel, meetings, reporting.

On behalf of the editors and members of COST E33 WG2.

Tuija Sievänen, Chair of COST E33 WG2

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Chapter 1. Introduction

Tuija Sievänen, Arne Arnberger, Jeffrey Dehez, Neil Grant, Frank S. Jensen and Hans Skov-Petersen

1.1 Background to COST E33 Action

Across Europe, the social functions that forests can provide, including recreation, are becoming increasingly important in the political agenda's of many countries. As well as being an important component of the wider leisure agenda, outdoor recreation is also important when considering areas such as health and well-being, and the wider quality of life agenda. In many countries outdoor recreation is also an important part of cultural heritage. In some countries recreational activities such as seasonal collection of berries and mushrooms have always been an integral part of rural life. Visits by urban people to forests for walking and picnicking also have a long tradition. Living or spending extended amounts of time in second homes located close to nature is a growing phenomenon across Europe.

Outdoor recreation in Europe is evolving and the future will be affected by many dynamic factors. The demographic structure of the European population is changing. In particular the ageing population presents special challenges: the 'new' elderly are likely to have more time and money, but to be less fit and to have special requirements. The generally improved prosperity offers multiple opportunities to travel to nature areas. However, the requirements of poorer people may be different from those of wealthier citizens. They are more likely to need facilities that are located close to home, or in places they are able to travel to easily. In many countries ethnic minority populations are growing, but often little is known about their demand for outdoor recreation. In general it can be concluded that the demand for forest recreation has been increasing in volume in recent years and that the demand has become more diverse.

While the demand for recreation has been on the increase, in many countries the supply of open areas for recreation access has become scarcer and the competition with other forest and land use forms more severe. In the most populous and urbanised countries of Europe, forests and urban green spaces are often the main types of landscapes where close-to-home public access is available to areas with natural qualities. Urbanisation and development are putting pressures on many forest areas and the associated higher levels of recreational use are endangering the ecological status of forests. New forests are also being established with public recreation very much in mind, often close to large centres of diverse urban population, however, often little is known about the demands of these populations.

Due to its increased importance and complexity, as well as the potential conflicts with other functions, the social functions of forests have to be dealt with much more explicitly than in the past. This increased attention and awareness is required at a range of levels, from policy-making, spatial planning, and designing to the management of a specific area. Consequently, the need for

information on the actual usage of nature areas (by different population groups) as well as on the supply of areas and services suitable for recreation, has increased remarkably. Thus the need to develop knowledge on the intensity and forms of recreational usage of natural areas is more important than ever. In addition, because recreation resources are more and more under pressure, it has also become crucial to monitor the public supply of these opportunities. In EU, the topic of outdoor recreation has not been discussed widely or been a serious concern to date. There is neither a common policy statement to set goals for provision of recreational resources, nor are outdoor recreation statistics collected by EUROSTAT or any other European agency. A step towards a development of policy statements about outdoor recreation in the EU was taken with the establishment of COST Action E 33 'Forest for recreation and nature tourism'. The goal of the COST Action was to review and analyse the state of knowledge of recreation and its impacts, to science-based information on policy programmes or on practical planning and management. This Action provided an opportunity for networking and processing state of art reviews on how different countries stand in terms of the provision of outdoor recreation opportunities, how countries monitor the usage of resources and how the whole phenomena is documented and recognised in national forest policies.

COST Action E33 had three working groups, which each dealt with a different aspect of research and practice. Working group 1 examined forest recreation and nature tourism from an economic and social perspective with particular focus on rural development, whilst working group 3 looked at the planning and management issues relating to forest recreation. This report is the main output of Working Group 2 "Recreation and nature tourism supply and demand". The focus of the group was recreation monitoring. Twenty-one European countries were represented in working group 2 (Appendix 3) and this report is based on the materials collected by individual country members.

1.2 What is recreation monitoring and why it is needed?

In this report recreation demand, supply, inventory and monitoring are key terms. They are related to the provision and collection of recreation information. A definition of recreation demand depends on the context, and the survey's scientific approach and objectives. From a social-psychological point of view, outdoor recreation demand refers to a person's willingness to spending time and other resources on a specific type of recreation activity. The outcome of this behaviour is an experience that satisfies personal needs. Demand for recreation opportunities is thus a demand for instruments or courses of action to realise a psychological demand. This approach looks at the demand for recreation experiences and the social values derived from those experiences. Demand also refers to recreation behaviour patterns. Another approach, traditionally relating to resource allocation, is to consider demand for recreation activities on specific sites or resources (Clawson and Knetsch, 1978). Outdoor recreation demand is basically linked to resources such as land base and man made services. In addition, outdoor recreation demand also has broad linkages to many other sectors in society. Outdoor recreation should also be considered within the context of e.g. social, health, sport, culture, forest and nature policy, and is thereby linked to other social and economic goods and services. Recreation supply refers to the natural and man made resources, which are used to gain the recreation experiences.

What is recreation monitoring? Recreation surveys normally take place for a specific purpose to provide specific information at a specific time. The term recreation inventory refers to data collection that takes place once only, but may use standardised methods across different areas, sites and time slots. When recreation inventories are planned as part of a continuous systematic

series of data collections to monitor changes over time, this series of inventories may be termed recreation monitoring (Sievänen 2004). Recreation monitoring is a principal method to provide comparable, continuously updated information for resource allocation, planning and management of recreation resources on national, regional, local and site levels.

In many countries, although forest recreation has a long tradition, it has not been considered within the context of forest or welfare policies. For as long as the volume and importance of recreation is not reported by science-based inventories and surveys, the whole phenomena remains invisible to policy makers, government and municipality agencies. Outdoor recreation is typically every citizen's right but the interests of outdoor recreation users are often not represented by strong interest groups. Continuous production of information on the volume of recreational use of natural resources is required as evidence to give grounding to decisions about recreation resources and provision of recreation services. Particularly within the vicinity of urban areas, the justification for green areas is questioned due to the pressure of allocating land for other purposes, such as building houses, roads and industry. A negative attitude towards providing recreation services on public land may arise if the benefits of recreation are not visible.

Recreational resources are most often a public good or service available to local residents. Municipality and state agencies provide different types of recreational areas and services free of charge to the citizens. In many European countries, private forests with public access also provide recreation opportunities. The provision of public recreation services and areas is often only interpreted to be a cost to the society. If the health and wellbeing benefits of close-to-home outdoor recreation are not recognised and understood, the result may be misallocation of land resources and public funds, and unfavourable land use and leisure policies, which, in turn, may lead to limited provision and poor maintenance of recreation services. To ensure adequate development and provision of recreation services in green environments, it is important to be able to take into account the benefits of outdoor recreation. Verification and documentation of the benefits are not easy when markets do not provide information on the volume and the value of the services. It is for this reason that frequent and continuous recreation monitoring is important in showing some of the positive outcomes of recreation resources and services for citizens.

Nature tourism instead is often seen as the only positive use of natural resources, as it brings direct economic revenue to local enterprises and communities. Without proper information on recreational use by tourists, their potential negative impacts on local resources may not be recognised. In addition, conflicts between local users and tourists may be more difficult to assess and solve if there is no information on the volume and quality of recreational visits. All visitors, whether they are local residents or visiting tourists, are visitors to nature, and have some similarities in their impact on natural environment. All visitors also need the same type of services in order to prevent and/or to minimise the negative impacts of recreational usage, i.e. all visitors need trails, toilets, shelters, fire wood etc. In order to collect information from local people or from tourists, multiple research methods may be required, including on-site visitor studies, population and tourism surveys.

Recreation monitoring is a principal method to provide information for resource allocation, planning and management of recreation resources on national, regional, local and site levels. Recreation information is required to evaluate the social, economical and ecological sustainability of natural resources, and to evaluate the success of respective policies across European. Basic volume and quality of use data is useful for both planning, and for evaluating projects and actions.

One important aspect of recreation monitoring is recognising the cultural differences across countries, regions and local areas. Urban–rural perspectives are one dimension of these cultural differences. While information on both the rural and urban populations can be collected, due to the scarcity of recreation opportunities, the urban populations are often prioritised. Recreation in nature is the principal way urban people interact with nature and is also often how the understanding of natural processes, and of the human impact on natural processes, develops. For rural populations, as traditional agriculture and forestry livelihoods decline, nature tourism is one way to develop new sources of income and find new occupations and employment. A challenge emerging from the increasing diversity of the population in many European countries is to consider and reassess the wider demand for recreational usage of natural resources.

1.3 The aim of the report

In COST Action E33, the aim of Working Group 2 (WG2) was to evaluate the state of the art of the present information basis for recreation in European countries. The focus of WG2 was on recreation monitoring, i.e. the information basis developed continuously and systematically to offer a national, regional or site-specific coverage of information, and information on changes over time. This work supports the goal of the whole COST Action in reviewing and analysing the state of knowledge of recreation and the science-based information on policy programmes or on practical planning and management.

The primary task for WG2 was to provide a state of the art report on "Recreation and nature tourism demand, supply and behaviour patterns research, covering the collection and interpretation of information on the amount and type of demand for forest recreation and the supply of recreation opportunities". The following tasks were specified in the Memorandum of Understanding of COST E33:

- a. Evaluation of possibilities to harmonise methods of recreation demand inventories and behaviour research in order to develop a comparable and compatible information base of recreation and nature tourism demand in all European countries.
- b. Evaluation of techniques for harmonising databases concerning recreation supply, the aim being to develop better delivery of information about the supply of recreation resources and services through the Internet and other means for landowners, managers, administrators and the general public.

Further goals were to establish cross-disciplinary links between recreation demand and behaviour modelling and to assess the impacts of usage on resources, such as visitor pressure on sensitive sites. The group was also tasked to evaluate cross-national, GIS-based indicators and potential pressures on nature in terms of accessibility and impacts on the forest resources. Another challenge was to assess the changing basis of demand and of types of recreation, with demographic shifts, including evaluation of studies based on the national census and other statistics from each country. However, it was found that these goals were too demanding at this stage while the information basis on outdoor recreation in many European countries was found to be relatively shallow, not nationwide or regionally systematically gathered, or not measured with compatible methods, nor available for European comparisons.

WG2 also considered the information requirements specified in the Pan-European criterion of sustainable use and management of European forest resources. The Ministerial Conference on the Protection of Forests in Europe (MCPFE) has worked on Pan-European Indicators for Sustainable

Forest Management (SFM) (Improved Pan-European Indicators... 2002)¹. These criteria include indicators related to actual recreational use of forests, and several indicators related to the supply of forest resources for recreation. In order to provide suitable information for these criteria, a common understanding of indicators and production of information across European countries is required. In order to be able to monitor sustainability, continuous recreation monitoring is needed to provide information and the ability to make comparisons over time. Standardisation of information content and methods are major challenges to overcome in this process.

The main work undertaken by WG 2 during 2004-2007 involved the collection of meta-information on the kind of recreation monitoring information that exists and its availability on national, regional and site levels, the methods used to produce the information, and on how the information is delivered to different user groups in administrations, planning and management. Appendices 1 and 2 present the material collected from participating countries. The country reports in Appendix 1 describe the status of forest recreation in each individual country.

The recognition of the need for recreation monitoring within policy and legislation documents (provided by participating countries) is analysed and summarised in chapter 2.

Chapter 3 describes the existing data and recreation monitoring methodologies. First, it describes the status of national or regional recreation demand inventories (Chapter 3.1) by examining the following questions;

- Have recreation demand inventories (population surveys) been undertaken on a national or regional level, and what kind of sample has been used?
- What are the measures of participation?
- How comparable are the methods used in different countries?

On-site monitoring is then examined and methods described (chapter 3.2), before the status of databases of recreation supply information, e.g. recreation areas, trail and services, is described (Chapter 3.3).

Chapter 4 assesses experiences and impacts of recreation monitoring information with examples from five countries.

Chapter 5 evaluates the status of monitoring across Europe and discusses to what extent the harmonisation of recreation inventory information is required across European and considers some potential future actions. It examines the comparability of recreation inventory data and suggests methods to improve data and its comparability, before setting goals and recommendations for a potential future harmonisation process. Finally, the means of international co-operation are discussed, considering, for example, whether there is an opportunity to develop common outdoor recreation statistics for Europe.

¹ Improved Pan-European Indicators for Sustainable Forest Management 2002. MCPFE Expert Level Meeting Vienna, Austria. Available at <http://mcpfe.org/publications/pdf>

Chapter 2. Outdoor recreation in forest policy documents and legislation

Sandra Gentin, Frank S. Jensen, Andreas Bernasconi, Anne-Marie Granet, Geert van Kerckhove, Erodotos Kokouris, Carsten Mann, Eija Pouta and Urs Schroff

2.1 Introduction

Recreation inventories have been conducted in several European countries (Chapter 3), although the reasons for conducting inventories vary between the different countries. National inventories can guide overall recreation policies and resource allocation, while on-site inventories can help with planning and management on local level. However, researchers often face situations where policy makers and managers do not recognize the need for monitoring. For managers it can be also difficult to specify their information needs and therefore the scientific interest of the research community may often direct the inventory. There is no general agreement or standards on e.g. when the recreation monitoring is necessary and what information and variables should be included in inventories of outdoor recreation. A source that could provide a more general picture of the need for recreation inventories are forest and land-use policy documents.

Outdoor recreation aspects in European forest policy documents have been reviewed from various perspectives. Bauer et al. (2004) reviewed the public access of forests in Europe. Yudego (2001) compared the national forest programmes in Europe by their recreation and society aspects. Cirelli et al. (2001) have looked at European forest laws (where the trends are towards addressing a wider range of private and public goods and values). From accounting perspective Eurostat has reviewed the recreational functions of forests in four European countries (Eurostat 2002).

By analysing policy and legislation documents, the objective of this chapter is to define the information needs that could be answered by national inventories of outdoor recreation demand and supply or with other corresponding means. To analyse the need for recreation inventories this chapter contains a review of how the recreational aspect is reflected in the core EU-level and national policy documents. It was assumed that policy documents do not go into details in defining what information the recreation inventories could contain, and it was therefore of interest to know in which countries and documents outdoor recreation is generally mentioned. Another aim was to identify whether the need for recreation inventories is mentioned in the different European and national documents and to find specific information needs that could be fulfilled by recreation inventories.

Although the main emphasis of this review was on forest related policy documents and forest legislation, other relevant documents and legislation that regulate outdoor recreation were included (e.g. legislation regarding nature protection/conservation and outdoor recreation, NGO documents or other documents).

EU-level documents known by the authors were reviewed. The information of the national policy and legal documents were collected using the COST E33 network as respondents. An e-mail questionnaire was sent to the participants from the participating countries. The respondents were asked to provide information on how the recreational aspect is reflected in policy documents on a national level, exploring core policy documents and describing the extent to which different documents took the recreational function of the forests into consideration. The accuracy and extension of responses varied considerably. By following up with questions posed to each respondent, the information from each country was edited to a congruent standard.

In the following we provide an abridgement of the outdoor recreation information contained within European and national level policy documents, as provided by the COST participants. First, we describe the European level documents; secondly, National Forestry Programmes are described; thirdly, the recreational aspects of national legislation regarding forestry; fourthly, other legislation in relation to access to nature are reviewed; fifthly, we describe other policy documents in relation to outdoor recreation; and finally, documents that particularly mention *monitoring* of outdoor recreation in the participating COST-countries are accentuated. In the discussion and conclusion we form a general picture of the information needs for recreation demand and supply inventories.

2.2 European documents

2.2.1 Ministerial Conference on the Protection of Forests in Europe: State of Europe's Forests

The Ministerial Conference on the Protection of Forests in Europe (MCPFE) is a high level political initiative that has developed as a dynamic process towards the protection and sustainable management of forests. This political commitment involves 45 European countries, the European Community and co-operates with other countries, as well as international organizations that participate as observers.

The MCPFE process has produced The “**Pan-European Indicators for Sustainable Forest Management (SFM)**” (2002) that contains a set of quantitative and qualitative indicators for sustainable forest management, including a number of criteria relating to outdoor recreation:

Criterion 3 “Maintenance and encouragement of Productive Functions of Forests” contains an indicator which is related to outdoor recreation. The rationale behind this indicator 3.4 “Services – value of marketed services on forest and other wooded land” is that “*marketed services include, for instance, hunting licences, fishing licences, managed outdoor recreation areas or trails for mountain biking, horse riding, skiing and other recreational activities... Depending on national laws these marketed services of the forest contribute in general directly to increase the income of the forest owner.*” The measurement unit for the status of this indicator is “national currency/ha” while changes are measured in “national currency/ha/yr”. Also Criterion 6 “Maintenance of other Socio-Economic Functions and Conditions” contains indicators which relates to outdoor recreation: indicator 6.10 “Accessibility for outdoor recreation” and indicator 6.11 “Cultural and spiritual values”. The rationale of the first indicators is that “*ownership patterns and property rights affect public access to forest and other wooded land. Access to forests enables people to benefit from the recreational value of forests which contributes to quality of life. Since many*

recreational uses are not marketable or based on legal or effective rights of free access this indicator complements any data under indicator 3.3 (non wood goods) and 3.4 (services) from the social point of view.” The measurement unit for indicator 6.10 is “ha” (% of total area of forest and other wooded land) for measuring status and “annual changes/ ha” (annual changes in % of total area of forest and other wooded land) for measuring changes. The second indicator relates to that *“forests have many cultural and spiritual values for societies and individuals, notably for religious aesthetic and historical reasons. Although frequently intangible and/or personal often these values are manifested in particular sites which are increasingly being identified, listed and protected. The number of such sites officially designated is a rough indicator of the cultural and spiritual values assigned to its forests by society.”* The measurement units for this indicator are “absolute numbers of sites” (status); and “absolute numbers of sites/yr” (changes). (Ministerial Conference... 2003a and 2003b).

At the 5th Ministerial Conference in Warsaw (Poland), 5 – 7 November 2007 the decisions taken under the preparatory process was convened under the title “Forests for quality of life” (Ministerial Conference...2007a). At the Warsaw Conference ministers responsible for forests in Europe took decisions on common aspects concerning forests and forestry being of the highest political importance. The ministerial commitments are embraced in the Ministerial Declaration and two resolutions concerning:

- Warsaw Resolution 1: “Forests, Wood and Energy”
- Warsaw Resolution 2: “Forests and Water”.

Although the conference theme was related to ”quality of life”, no immediate high level resolution in respect of outdoor recreation or other social or cultural aspects seems to be on the agenda!

The 4th Ministerial Conference on the Protection of Forests in Europe was held in 2003 in Vienna/ Austria. At this Conference five Resolutions and a General Declaration were prepared. Especially the Vienna Resolution 3 “Preserving and enhancing the social and cultural dimensions of sustainable forest management in Europe” contains outdoor recreation related issues. The Signatory States and the European Community have committed themselves to for example: *“to address the social and cultural dimensions of sustainable forest management in national forest programmes and other relevant policies ... to maintain and further develop both the material (e.g. wood in architecture, medicinal plants) and the non-material (e.g. recreation, well-being, health) social and cultural aspects and benefits of sustainable management”*. All documents have been adopted by high level representatives of 40 European Countries and the European Community.

2.2.2 Improvement of the ecological and social values, public forests

This scheme is a part of the EC regulation “Council Regulation 1257/1999” on support for rural development from the European Agricultural Guidance and Guarantee Fund.

The aim of the scheme is to significantly improve the ecological and social values of the public forests by, for example, developing the role of the forests as a “national welfare benefit”, by giving the population better opportunities for outdoor recreation. The document recommends a number of approaches for strengthening the opportunities for outdoor recreation and experiencing nature in the forests; we should conserve the cultural values in the forests; develop more dialogue; increase the knowledge and awareness regarding the functions and importance of forests; and

last, but not least, promote physical and mental wellbeing via the interaction between forests and citizens, including the opportunities for outdoor recreation.

The scheme gives the opportunity to seek economic support (certain requirements have to be fulfilled). Recipients are the state, local and regional public authorities. The co-finance of the improvement of the social and ecological values can include: investments in facilities for public use such as playgrounds, simple camp sites, information boards, visitor centres, barbecue sites, bird watching towers etc; as well as investments in increasing the social function of the forests like nature schools, information-leaflets about forests, activities and campaigns to increase the public awareness concerning forests and forestry, and other measures to improve the social and ecological values of public forests.

2.2.3 European Landscape Convention, Florence

The aim of the European Landscape Convention (2000) is to promote European landscape protection, management and planning, and to organise European co-operation on landscape issues (Article 3 of the convention). This means ensuring the protection, management and planning of European landscapes through the adoption of national measures and the establishment of European co-operation. The preamble outlines the issues underlying the convention, emphasising the following points:

The convention is part of the Council of Europe's work on natural and cultural heritage, spatial planning, environment and local self-government. It highlights that the aim is to achieve a greater unity between its members for the purpose of safeguarding and realising the ideals and principles that are their common heritage, and that this aim is pursued in particular through agreements in the economic and social fields. The preamble recognises that developments in agriculture, forestry, industrial and mineral production techniques and in regional planning, town planning, transport infrastructure, *tourism and recreation* and, at a more general level, changes in the world economy are in many cases accelerating the transformation of landscapes.

Article 5 describes the general measures by which each party has to integrate landscape into its regional and town planning policies and in its cultural, environmental, agricultural, social and economic policies, as well as in any other policies with possible direct or indirect impact on landscape.

2.2.4 EU Forest Action Plan

The aim of the EU Forest Action Plan (2006) is to provide a framework for forest-related actions at Community and member state level and it serves as an instrument of coordination between Community actions and forest policies of the member states. The overall objective of the Forest Action Plan is to support and enhance the sustainable forest management and the multifunctional role of forests – where multifunctional forestry delivers economic, environmental, social and cultural benefits.

The five year action plan (2007-2011) consists of a set of key actions which the commission proposes to implement jointly with the Member States. One of the four objectives of the Forest Action Plan is to contribute to the quality of life by preserving and improving the social and cul-

tural dimensions of forests. The key actions, which relate to this objective, describe the need for recreation in rural and urban areas as well as the *need for monitoring*. It is stated that the monitoring should draw on existing systems, which means that significant recreational-related data is not included.

Summary of findings: Four types of European documents are identified (since the 1990s) where outdoor recreation is reflected in the environmental and agricultural sector. Three of the four policy documents are related to forestry, addressing the issue of outdoor recreation as an important social forest function. Their common aim is to measure and improve sustainable forest management and strengthen coordination and cooperation Europe wide. The associated commitments are varying. Of special importance is the “The Ministerial Conference on the Protection of Forests in Europe (MCPFE)” which specifies criteria and indicators for measuring the cultural and societal importance of recreation as part of sustainable forest management. The need for information and inventories on outdoor recreation demand and supply is not specifically mentioned in any of the four documents (although the EU Forest Action Plan mentions the need for monitoring in more general terms). However, as the criteria and indicators are specified, the need for their monitoring is assumed in the MCPFE. The documents have been adopted by most member states and by the European Commission.

2.3 National Forest Programmes

The background of the National Forest Programmes for EU countries is a European commitment, which stipulates that the National Forest Programmes should be the basis of forestry development and contain a description of how the different countries transform international obligations to their forests. However, not all of the participating COST countries have implemented the National Forest Programme (Ministerial Conference...2007b). Some are still to come, while others are in the legislative process. In the following we describe the outdoor recreation aspects of the different National Forest Programmes.

The **Danish National Forest Programme** (Danmarks Nationale Skovprogram 2002) describes the vision for the Danish forests. The visions are divided into six different objectives, where two objectives (social and knowledge) relate to outdoor recreation. The first objective emphasizes the importance of developing the woodlands as a national welfare benefit through their role as popular health and awareness settings, by providing opportunities for nature experience and outdoor recreation. This includes: to strengthen the possibility for outdoor recreation in the forests and strengthen physical and psychological wellbeing. The aim of the second objective is to build up and impart knowledge and competence and thereby strengthen knowledge about the forests biological diversity, economy and social aspects, including both user needs and expectations. A continuous monitoring of the forests is also a part of this goal (see section 7 for more on monitoring).

The key components of the **UK’s National Forest Programme**, ‘Sustainable Forestry in the UK’, are described in the UK Forestry Standard document (1998). The purpose of the UK Forestry Standard is to set out the criteria and standards for the sustainable management of all forests and woodlands in the UK. The Standard is linked to the developing international protocols for sustainable forestry and provides a system to guide and monitor forestry in the UK. One of the forest recreation protocols specifies that forests and woodlands provide an ideal environment

for many recreational pursuits and, with appropriate planning, are able to absorb the pressures of large numbers of visitors. Recent years have seen the development of new woodlands near to towns managed with the primary purpose of providing public access and recreation. Many forest owners allow (and some make special provision for) public access. Most publicly owned forests have a policy of freedom to roam, and encourage a wide variety of recreational activities. England, Scotland and Wales each have their own national strategies which are integrated within the scope of the UK Forestry Standard but are able to better reflect national priorities.

The **Finnish National Forest Programme 2010** (2000) is the cornerstone and strategic foundation of the Finnish forestry policy. Like the Danish programme the Finnish Programme aims to ensure forest-based work and livelihoods, biodiversity and vitality of forests and opportunities for recreation for all citizens. The aim of the programme is directed towards securing employment and income based on forestry, assuring the diversity and health of forests and, finally, allowing people the special kind of recreation and leisure that only the forests can offer. Social and cultural sustainability is supported by co-ordinating forestry with the traditional forms of forest use, i.e. hunting, berry and mushroom picking, recreation and reindeer husbandry. Also the so-called every man's right, which allows the citizens equal opportunities to enjoy the forests, is mentioned and secured in the programme.

The **German National Forest Programme** (2000) mentions outdoor recreation, but to a far lesser extent than the above descriptions. The German National Forest Programme describes the new role of the forests on the basis of the social change during the past 30 years, which contributes to new demands and user structures regarding for example outdoor recreation. The National Forest Programme provides the Federal Ministry of Food, Agriculture and Forestry with information on the demand for forest recreation for its forest policy activities and constitutes a social consensus on the sustainable development of forests. Therefore the document describes the importance of the need for new strategies, with more participation of user groups and other stakeholders, better integration in European programmes and initiatives, and more social sciences. The aim of the **National Forest Programme of Cyprus** (1999) is to implement the "The Rural Betterment Strategy" of the Cyprus Forestry Department. The objective of this strategy is to protect the forest resources for the benefit of the whole community while capturing the advantages of development based on ecotourism. The strategy supports and regulates the development of forest recreation and tourism by encouraging, guiding and controlling recreation and tourism development in forest areas. In addition the Cypriot National Forest Programme includes provision for the expansion and improvement of recreation facilities, restoration of outstanding traditional buildings and the location, protection and maintenance of giant trees and nature monuments.

The **French National Forest Programme** (2006) intends to enhance future forest policy with particular emphasis on timber production. Nevertheless, the increasing importance of forests for recreation around urbanised areas is also mentioned. The strategy for forest recreation management – as for other non marketed forest services – focuses on the promotion of agreements involving all affected stakeholders at a local level. The **Slovakian National Forest Programme** (2005) was approved in 2005, and contains few chapters where outdoor recreation or recreational land use is mentioned. Hence the forest programme proposes and realises the different principles of forest management predominantly focussing on ecological and environmental functions (e.g. protected forests, recreational forests etc.), as well as incorporating a social system for individual charging for forests with healthy-treatment and recreation functions.

Even though the importance of outdoor recreation demand is increasing in Switzerland, outdoor recreation is not mentioned in the **Swiss National Forest Programme** as one of the 5 major topics, but as one of 7 additional topics. In Switzerland, recreation and leisure services are primarily the responsibility of the cantons and municipalities. The Confederation can only support the fulfilment of recreation objectives through communication and exchange of information, but not with financial support. The Confederation plans to develop an improved basis for the economic enhancement of recreational and leisure activities. The **Lithuanian National Forest Programme** (2002) does not mention outdoor recreation. The main objective of this document is to define the major instruments for the implementation of the forestry policy for the period until the year of 2015. Therefore this strategy document contains guidelines for forestry policy: general, economical, ecological, and social.

Norway does not have a separate policy document for a National forestry programme. The Ministry of Agriculture and Food understands the Norwegian national forestry programme as the totality of forest policy processes, as the white paper on forestry (*Verdiskaping og miljø – muligheter i skogsektoren 1998-1999*), the work on the state budget, the living forest process, the work with the new forestry act (of 1. Jan. 2006) etc. In that regard the national forestry programme in Norway may be defined as a "process" rather than a specific policy document (Trømberg 2005).

Neither has **Sweden** implemented a National Forestry programme. But in March 2005, the Swedish Forest Agency formally adopted a set of objectives for the nations' forest sector, "Quantitative targets of Swedish forest policy" (2005). They include overall policy objectives laid down by the Swedish parliament, plus thirteen quantitative targets to be fulfilled within a specified time. Two of the quantitative targets concern social objectives: 1) cultural heritage, and 2) urban woods. However, the objectives do not allocate responsibility or indicate which measures need to be taken. Those concerns are often understood to be addressed by national forest programmes. In the long-term vision, the overall policy objectives of social and cultural values are interpreted. Forest management shall take into consideration the many uses the people may make of the forest within the framework of legal "right of public access". Forestry shall also keep making the forests accessible. Given the aesthetic values and accessibility of the forest landscape, the right of public access becomes a value asset which enhances the potential of the forest to contribute to the well-being of the population.

Austria has not fully (2006) implemented a National Forestry Programme. But the Austrian Forest Dialogue is the first step towards a National Forest Programme. The Forest Dialogue is a participatory process about the future of the Austrian Forest. However, this initial National Forest Programme contains among other things topics about recreation and tourism. The programme defines some aspects of the tourism and leisure economy as a problem field, because an increasing visitor pressure on the "forest as a production location and ecosystem" could cause a variety of different problems. Also the **National Forest Programme of Croatia** has not been implemented yet. However, the Croatian Government has adopted a national forestry policy and strategy that briefly describes the role of forests in regard to outdoor recreation (National Forestry Policy... 2003). In **Latvia** the concept is still in draft. The draft enhances the role the non-timber resources including recreation services in the internal market (Concept of the National... 2004). In **Iceland**, newly set legislation regarding regional afforestation projects provides the base for the current National Forest Programme. Its main aim is to establish forests on 5% of the Icelandic lowlands. In December 2006, a working-group was commissioned by the Icelandic Ministry of Agriculture to develop a comprehensive National Forest Programme (Parliamentary resolution... 2003).

In **Ireland** in response to the lack of forest cover, the first State forestry programme was inaugurated in 1903 when forest cover was 1%. Although many forests were planted during the following decades, it was not before 1989 that Coillte – the State Forestry Board – was established to effectively manage the public forest estate built up since the commencement of state planting. In the early 1990s, the first nationwide Operational Programme came into being. In 1996, “*Growing for the Future*”, a strategy plan for the development of the forestry sector in Ireland, was published. This document has shaped forest policy since, with its stated overall aim being “to develop forestry to a scale and in a manner which maximises its contribution to national economic and social well-being on a sustainable manner and which is compatible with the protection of the environment.”

Summary of findings: Almost all countries have implemented a National Forest Programme or the Programme is currently in progress (Table 2.1). Outdoor recreation is mentioned in 12 of the National Forest Programmes (existing, or in progress), highlighting recreation as one objective of the national forest strategy, its planning and management. Two countries with no “strict” National Forest Programme (Sweden and Norway) have State Forestry Programmes, covering outdoor recreation and social well being. While some northern European countries assign outdoor recreation a higher priority, including objectives and regulations, the central and southern European countries rather generally describe recreation as being important for society but remain more vague in proposing actions. The overall need for providing recreation opportunities as well as participatory planning methods is widely expressed. The need for monitoring of outdoor recreation is only mentioned by Denmark.

2.4 Forest legislation

In the following, the participating COST countries’ forest legislation is described with special emphasis on outdoor recreation. Focus will be put on whether the different countries’ laws include outdoor recreation related issues or not.

The **Austrian Forest Law** (2002) mentions “outdoor recreation” in several sections of the law such as: recreation benefits, access, recreation purpose and rules regarding recreation facilities. It stipulates in Austrian forest law “*that it is the task of forest planning, to provide forests to such an extent and quality that the following effects, as ... recreation benefit, which especially is the effect of the forest as a recreation area, can be achieved and guaranteed at the best for the forest visitors.*” Austrian forest law also contains rules regarding access to forests “*anybody may enter the forest [on foot] for recreation purposes and stay there*”. The law further contains rules about the facilities for outdoor recreation in the woodlands. Outdoor recreation and access are also mentioned in **German Forest Law** (2006). The Federal Forest Act allows entering all kind of forests for recreation purposes, at any time, everywhere and independently of ownership structures, with only few exceptions. Because of the high use pressure on forests close to urban areas these forests are urged to maintain and develop recreational infrastructures. The basis to establish recreation infrastructure is set out in the Basic Constitutional Law (1949 Art. 2, Abs. 1), which protects visits to nature and engagement in activities in nature for recreational purposes as part of the general freedom of action. It is stated in the law that everybody has the right for a free development of the personality as long as it does not disturb other people’s right and the constitutional order. Therefore, forest recreation planning has become a social-political goal with government in charge of the development of a sound recreation infrastructure that allows the public to participate in nature

based leisure activities and recreation. The government realises its duties with the help of land use planning legislations on different administrative levels and the relevant planning acts like the Federal Forest Act and others.

The purpose of the **Norwegian Forestry Act** is stated in §1: “... *forestry through rational management should give a satisfying result for people in the business and secure efficient and smooth supply to the industry*”. This statement shows that it may be characterised as a sector-oriented Act, but other paragraphs clearly encourage the application of multiple-use practices, too. The Forestry Act (2005) also defines the structure of the forest management sector. Moreover, it gives the owners freedom under responsibility to manage their own forests. The act also emphasises environmental consideration in forestry (§4). The Act is rather weaker when it comes to planning and public participation, but includes some statements such as those affected by decisions should be given the right to express their view. Decisions made at the local level may be appealed to the County Agricultural Board.

The **Swedish** forest policy adopted in 1993 by the parliament includes two objectives, one relating to forest production and the other to environmental protection. Both objectives were granted equal importance. The environmental objective stresses that the forest’s historical, aesthetic and social values shall be preserved. Production goals and conservation goals are both given equal importance in the revised Swedish Forestry Act of 1994. Forest owners have great responsibility for achieving these goals. However, there is a need to elucidate what legal regulation is essential in forest management to guarantee the forest qualities for recreation.

The **Swiss forest law** of 1992 explains the main functions as protection, use and welfare. Recreational aspects in forests are also regulated in Swiss forest law. In Switzerland, anyone who wants to go to the forest can go whenever and wherever they like. The right of free access was laid down in 1907 in Article 699 of the Swiss Civil Code. Therefore, the forests are freely accessible for normal use, regardless of whether it is privately or publicly owned. In Switzerland restrictions on access are only permissible if they are in the interests of forest protection or some other public concern, e.g. in order to preserve biodiversity. The origin of the above mentioned Swiss laws is the Alemannic law and the traditional use of common land (Allmende), which can be compared with the Scandinavian “Everyman’s’ right”.

Since Belgium became a federal state in 1980, forest policy has been defined regionally. The **Belgian forest code** is the only law that was modified by each of the three administrative regions of Belgium (Flanders, Wallonia and the Brussels-Capital region) and thus forest policy is becoming more and more different from one region to another. The purpose of the **Flemish Forest Law** (Forest declaration 1990) is to promote sustainable forest management, which entails economic and ecological values as well as scientific and social values. However, the Flemish Forest Law also contains specific rules for public and private forests with regard to outdoor recreation. A new **Walloon Forest Code** is being formulated, and it contains some precise descriptions regarding the multifunctionality of the Walloon forest – including outdoor recreation.¹

Outdoor recreation is mentioned in **Greek Forest Law** (1979). Besides regulation of outdoor recreation the law determines the specific protection measures for maintaining, developing and

¹ Law including the Forest Code dated of 1854 but modified, among others, by the decree dated 16 February 1995 concerning particular clauses for the Walloon region regarding people access in woods and forests in general. This regulation is completed by an executor order dated 29 February 1996.

improving forests and other forest land of the country. **Cyprus Forest Law** (2003) provides a forest classification, including National Forest Parks and Nature Reserves, as well as regulations and directives regarding the use of National Forest Parks and Nature Reserves. It regulates the use of these forests in regard to their protection (mainly against fire, grazing and illegal felling), administration and proper use, including camping and picnic in forest areas. A new Forestry Legislation is being prepared which aims to incorporate the relevant requirements of the European Union and other international obligations. The **Slovak National Forest Law** (2005) contains rules regarding ownership of forest areas, their functions and nature resource richness. High emphasis is placed on forests that function as gene pool resources and forests with high biodiversity. The social functions of the forests are widely described as aesthetical, cultural, historical (trees as natural monuments) and recreational. The admittance to the Slovakian forests for recreational use is free.

The **Forest Law of the Republic of Lithuania** (1994, amended 2001) regulates forms of ownership and establishes the rights and duties of all forest managers, owners, holders and users of Lithuanian forests to utilise, reproduce, grow and protect forests. Further, the law strikes a balance between the interests of forest owners and society; regulates forest destinations and the use of forests; and establishes the main principles of forest management. Public access to forests is a fundamental right of people in Lithuania. This rule secures availability of forests for recreation. According to the forest law, citizens have the right to visit forests freely. Exceptions are forests, which, for example, are strict nature reserves or other forests that are environmentally protected. Forest owners can limit access due to e.g. forest cuttings, or the necessity to preserve forest resources. Information signs should indicate closure. In addition the Law also defines public use of non-wood forest products.

The purpose of the **Danish Forest Act** (2004) is among others to promote sustainable forest management. Sustainable management shall entail the inclusion of economic as well as ecological and social values. The administration of the Forest Act takes a holistic approach to ensure that proper attention is given to landscape, natural history, cultural history, environmental protection and outdoor recreation. In public forests, special emphasis shall be placed on the considerations mentioned above (including outdoor recreation). Access to forests and other nature areas is secured in other laws. **French Forest Law** also contains rules on sustainable management. The French law takes the multifunctionality (e.g. economic, ecological and social functions) of the forest into account, according to the principles of sustainable management. The law also states that public forests fulfil a special role in providing the public with environmental and social services such as recreation. Moreover, French Forest Law specifies that all public forests (includes both state owned and community owned) must complete a "Management plan" which take recreation purposes and public safety into account.² The management plan of the state owned forests has to be approved by the French Agricultural Ministry. Like the Danish and French Forest Laws, **Latvian Forest Law** (2000) contains rules on sustainable forest management of Latvia's forests. The law ensures equal rights, inviolability of the property, and independence in economic activities, and imposes equal obligations on all forest owners / holders. Protected forests are regulated more restrictively. Access and other outdoor recreation activities are covered in other laws. **Finnish forest law** (1996) was renewed in the 1990s and aimed to adjust the forest law towards international agreements of sustainable development. The purpose was to enthrone in forest policy and management, ecological and social sustainability with importance equal to the economic sustainability. The act states that its purpose is to promote economically, ecologically and socially

² French Forest Law: Forest Law (*Code forestier*)

sustainable forest management. However, even though social sustainability is mentioned in the aim of the act it does not contain any regulation of social sustainability. Although forest recreation is not directly mentioned, the law guarantees some of the forest qualities for recreation via the regulation of forest management. Neither the **Icelandic Forestry Act** or the Afforestation Act covers public access to forests. However, the 1955 National Forest Legislation is currently being reviewed (The Icelandic.. 1955 and 1966, Reclamation Act 1965, The Nature Conservation.. 1999, The Environmental Impact... 2000 and 2006, The Planning... 1997).

A new **Croatian Forest Law** was implemented in 2005. This Law prescribes silvicultural and protective measures for forests, utilisation and disposition of forest and forest land as natural resource. It ensures that management will be based on principles of economic sustainability, social responsibility and ecological acceptability. The law enables Hrvatske šume (the organisation that manages state owned forests in the Republic of Croatia) to define types of forest products, set fees for non-timber forest products and conditions under which people are allowed to collect these products. Hrvatske šume is also enabled to define the way in which people can use the forest for leisure and recreation in a general act, and can therefore make their own internal set of regulations for specific topics – the ‘General act’ (e.g. for hunting; for recreation forests; etc.).

There are no regulations regarding public access and recreation within the Forestry Act (1967) in the **UK**. The Forestry Commission provides access to as many public forests as possible and it manages, maintains and improves tourist, recreational and sporting facilities on its land. It is empowered by section 46 of the Forestry Act to make byelaws with respect to any land which is under its management and to which members of the public have a right of access. These byelaws can be used to regulate the use of land by the public for exercise and recreation (Mynors 2002).

In **Ireland** forest policy is governed by the Forestry Act (1946), which sets out the main provisions for controlling tree felling. While there is no mention of recreation in the act, it does allow the minister freedom to bring in legislation to support it. This was how forest recreation was developed in the 1970s. The act is currently being amended and recreation now features as part of the act, however, it has not gone to parliament yet (2007).³

Summary of findings: All surveyed countries have implemented a forest law/act. For twelve countries, the forest legislation, i.e. National Forest Acts, refer to outdoor recreation possibilities for the public. Of these, nine include access regulations. In many countries, the public has free access to forests for recreational purposes (especially state owned forests). Most limitations are due to protective purposes and specific activity regulations. Providing recreation opportunities is widely described as a public exercise rather than a private duty. Consequently, the mission for maintaining, developing and improving recreation possibilities on public lands is often anchored in the legislation, but seldom clearly defined. Careful forest planning is generally stated as a prerequisite for recreation management in a multifunctional way.

Six of the investigated European countries (Sweden, Finland, Norway, Iceland, Ireland and UK) do not refer to outdoor recreation in their forest legislation, and have no specific access regulation in their forest legislatures either (Table 2.1).

³ Occupiers Liability Act (1995). www.irishstatutesbook.ie

2.5 Other legislation which regulates outdoor recreation

Some of the above mentioned forest laws do not mention specific rules about access to the forests or other nature areas. Often the rules of access are described in other laws. This section of the paper describes the other laws that influence outdoor recreation.

In Denmark access is not specifically mentioned in forest law; but instead the **Danish Nature Protection Act** (2004) sets out the specific rules for access in different areas (forests, beaches, countryside etc.) and regulates the types of activities allowed in these areas. Two of the aims of this act are to give the general public access to experience nature, and to improve opportunities for outdoor recreation. There is open access day and night to public forests for walking and cycling, and (in some forests) to camp overnight. Access may not be hindered, e.g. by setting up fences. There are more strict rules for private forests. For example, access is only permitted on paths and roads, and only between 6 am and sunset. Although **UK forest law** does not contain specific forest access legislation, access to the countryside in **England and Wales** is regulated by the Countryside Rights of Way Act (2000) and in **Scotland** by the Land Reform Act (2003) and the Scottish Outdoor Access Code (SOAC). Laws of trespass control access to private woodlands in **England & Wales**. However in **Scotland**, under the Land Reform (Scotland) Act 2003, there is a right of responsible access to all woodlands on foot, bicycle and on horse.

Finnish forest law does not mention forest recreation either. The right of free access to the forests and countryside is secured by the so called “**Everyman’s right**”. In addition, the **Finnish Outdoor recreation law** (1973) governs some of the issues of outdoor recreation. This law is planned to be renewed in near future, and includes regulations for hiking routes, National hiking areas⁴ and camping areas, including the procedure for municipalities to establish hiking routes on private lands. The law also introduces the status of National hiking areas which can be established on state land when they have general importance as recreation destinations. Camping areas and their general requirements are defined in the outdoor recreation law (Outdoor recreation Act 1973). In **Norway** outdoor recreation is described in the **Open Air Recreation Act**, which provides the legal foundation for the traditional “everyman’s right”. As in Finland, the Norwegian everyman’s right gives public access to “utmark” (nature or semi-nature, as well as productive forest areas) regardless of ownership. The everyman’s right is limited by no access to agricultural land during the summer, and requests appropriate behaviour from recreation users. However, motorised access in the “utmark” is regulated in the “Law on motorized travel”, which regulates the right to use motorized vehicles in nature and semi nature areas, including forests. Such use is not allowed except under specific condition stated in law and regulation. This does not, for example, in general permit the use of snowmobile driving for leisure purposes.

The **Swedish** right of public access is not a law, nor is it an absolute right. It may rather be regarded as an opportunity, one that makes it possible for everyone to enjoy the countryside. But it is an opportunity that requires responsibility, consideration and good judgement. The right of public access can be concisely expressed in the phrase, “*Do not disturb, do not destroy*”. Rules describing the kinds of consideration that must be shown are incorporated into Sweden’s environmental law, and apply to everyone who exercises the right of public access (Allemansrätten).

⁴ National hiking areas in Finland are areas which have been equipped for hiking and other recreational use; including marked hiking and skiing trails, camping sites and lean-to shelters. Often the areas provide a visitor centre and rental cabins. The areas are managed by the Finnish State Forest Enterprise (Metsähallitus).

The Occupiers' Liability Act 1995 is the primary piece of legislation relating to the area of access to land in **Ireland**, setting out the responsibilities of the occupier/owner towards visitors, recreational users and trespassers. It is now beginning to more precisely define the responsibilities of users towards owners and the responsibility of owners towards users (Occupiers Liability Act 1995).

The **Icelandic Nature Conservation Act** (1999) provides the basis for non-motorized, public access to forests regardless of ownership. It does, however, include a paragraph allowing private landowners to control, on their own terms, the access during the establishment stages of forest areas. National land is defined as "*an area of land not privately owned, even though individuals or legal entities may enjoy specific limited ownership rights there.*" One of the aims of the Nature Conservation Act is that it "*shall facilitate the nations access to and knowledge of Icelandic natural and cultural heritage and encourage the conservation and utilisation of resources based on sustainable development.*" However, the discussion of outdoor recreation usually parallels the discussion of nature conservation and is addressed in several state legislative acts, for example the Environmental Protection Act, the Environmental Impact Assessment Act, the Travel Planning Act, the Planning and Building Act, the Protection of Wild Birds and Mammals Act, and specific acts for the establishment of several national parks such as the Thingvellir Protection Act (Nature Conservation Act 1999, Planning and Building Act 1997).

Most **French** forests are open for pedestrians only with few restrictions according to environmental or safety reasons – although private owners can forbid access. Cycling and horse riding are allowed on marked trails, but motorized vehicles are forbidden within natural areas except on roads open to public traffic. French Forest Law (*Code Forestier*) defines the main principles of forest legislation and policy but outdoor recreation is regulated by a combination of several other legislations. For example, the Civil Law (*Code Civil*) and the Environment Law (*Code de l'Environnement*) deal with ownership and access rights to natural areas, the Sport Law (*Code du Sport*), the Environment Law and the Urbanism Law (*Code de l'urbanisme*) deal with the organisation of outdoor sports that affect the preservation of forests and other protected areas. The purpose is to both promote outdoor recreation and to preserve the environment and secure the owners' rights.⁵

Both the **Flemish and the Walloon region (Belgium)** have implemented legislation which regulates access to forests. The laws are very similar. Both laws state that all paths, in public and private forests, are open for walking, except when it is clearly indicated that entrance is prohibited (eg. to protect ecosystems). This legislation also gives the private owners the right to close roads and paths in the forests for recreation. Other types of non-motorised recreation are regulated according to different types and users. Motorised recreation is at all times prohibited. Further, the law allows the government to limit access to preserve nature. Access to forests is regulated according to the different types of roads and users (pedestrians, bikers, horseback riders, motor vehicles etc.). The Forest Service has taken out an insurance that covers problems that can occur on open-access roads, even for private roads which the public can use (Access regulation... 1991, 1993a, 1993b, 2001).

⁵ Environment Law (*Code de l'environnement*)
Sport Law (*Code du sport*)
Urbanism Law (*Code de l'urbanisme*)

The **German Federal Nature Protection Act** (2002) regulates nature based recreation. Nature based recreation, including sport activities are accepted as long as the protection status of the landscape is met and in harmony with the ecosystem management. Management of landscape areas for recreation has two goals: to maintain natural conditions and to provide opportunities for recreation on a sustainable basis without damaging the natural resources or to create unacceptable social impacts. The term nature based recreation is also used in the **Croatian Nature Protection Act** (2005), in which the government defines recreational activities in protected areas. Recreational and tourist activities are allowed in various areas with different categories of nature protection (national parks, nature parks, protected landscapes and forest parks). The **Slovakian Nature Protection Act** (2002) regulates access to forests in Slovakia. The Slovakian forests are open for walking, cycling and horse back riding on marked trails and roads. Motorised access is prohibited. Access and recreation is further regulated depending on the different levels of nature protection. Besides the free access to almost all **Latvian** forests, the **law on protection belts** (1997) also enables the public to enter both coastal protection belts and green protection belts around cities. This law states that coastal areas must be accessible for recreation and tourism. Forest protection belts around cities and towns are established to compensate for the negative impact of urban areas on the environment as well as to provide urban dwellers with areas for recreation and improvement of health.

Public use of non-wood forest resources has a historical background in **Lithuania**. Gathering of mushrooms and wild berries is very popular, and is regulated by different laws (e.g. Rules of gathering... 1998, The list of species ... 2000). Following the rules of the **Use of Forest Minor Resources** (1996) and other legal acts, visitors are allowed to gather fruit, medical herbs and medical materials, except for protected plant species (The programme on... 2002). Everyone can gather nuts, berries and mushrooms and keep bees in state forests. Usage of medical herbs, mushrooms, berries and other forest resources can be prohibited or restricted if valid reasons exist in Strict Nature Reserves. The **Lithuanian Rules for Forest Visitor** (1996) set out the rules for visiting forests. A visit to forests is defined as a stay in the forest for other purposes than forest management or hunting (The Hunting Law 2002). Forest visitors must obey the rules and requirements of other legal acts related to forest and recreation. They have the right to visit all forests (except private forests closer than 100 meters from the owner's homestead), as well as in forests where visiting is limited by other legal acts. Visits to protected areas are permitted if this is not in conflict with the land use or protection of the specific areas.

Summary of findings: In eleven countries, further legislative domains cover the topic of outdoor recreation (Table 2.1). Predominantly, nature protection legislation sets out access rules for the recreational use of natural areas. The overall objective is to provide opportunities for outdoor recreation and to preserve/enhance natural and social conditions on a sustainable basis. Limitations of access are due to specific activity types (e.g. restricted motorised use); due to ownership structures, e.g. private landowners may control access to their land; or to protect forest cultures and biodiversity. Besides this, a number of European countries have free access rights ("Everyman's right"), allowing the public to enter forests and natural areas to experience nature and the outdoors. The need for recreation monitoring is not stated in this type of legislation.

2.6 Other policy documents

The **Dutch** policy (“Nota”) document “**Nature for people, people for nature**” (2000) of four Ministries was published in 2000 and contains the Dutch nature, forest and landscape policy. The Nota replaced and renewed the former documents for forest, nature, landscape and biodiversity policies. A central theme in this document is the broadening of the Dutch nature policy: both nature and landscape have to fit in with people’s needs and be accessible. In the Netherlands, outdoor recreation and access is regulated in a variety of documents; for example **Nota Ruimte (Spatial Policy)** which was published in 2004 describes the spatial policy of the Dutch Government. A strong economy, quality of life and attractive landscapes are the main features. An important goal is an economically and socially strong rural area. Recreation is one of many aspects in spatial policy. Green areas have to be accessible, attractive and usable for hiking, cycling and water sports. Spatial analyses combined with spatial demographic figures and knowledge of the use of leisure time and recreational activities are used to formulate policy. In addition, the **Vital Rural Area policy document** (Agenda Vitaal Platteland 2004) states that agriculture is not the only factor of importance anymore in the Dutch rural area. Rural areas develop from production areas to consumption areas: for living, working and recreation. One chapter (H6) specifically focuses on the opportunity for people to enjoy nature and landscape.

The **Swedish** Parliament has adopted 16 objectives relating to the quality of Sweden’s environment, and most of them are to be achieved by the year 2020. The ambitious aim is to pass on to the next generation a society in which all major environmental problems have been solved. Progress towards these goals is monitored and evaluated by the Environmental Objectives Council. About half of the objectives include recreational aspects: In the objective, “Sustainable Forests”, it is stressed that the value of forests and forest land for biological production must be protected, at the same time as biological diversity and cultural heritage and recreational assets are safeguarded. The “A Rich Diversity of Plant and Animal Life” objective specifies that people must have access to a good natural and cultural environment rich in biological diversity, as a basis for health, quality of life and well-being (Sweden’s environmental objectives 2006).

The **Scottish Forestry Strategy** (2006) seeks in particular to promote access in and around towns and cities. It states a need to create a right of responsible access, identify priority areas for the creation of access, and to develop paths which link wooded and non-wooded land. It also sees the provision of information as being critical in enabling people to make better recreational use of woodlands. The public access to woodlands is covered by the **Land Reform (Scotland) Act 2003**, which gives the right to use most rural land including the woodlands by non-motorized transport. The act does not confer the right to hunt, fish or shoot on public access land or to take away anything in or on the land (e.g. mushrooms or berries) for commercial purpose. The **Scottish Outdoor Access Code** has been developed to set out the law with regard to public and land managers’ rights and responsibilities within the act. The **England Forestry Strategy** (1998) includes objectives to target grants to increase the opportunities available to visit woodlands, particularly in areas where there are shortages of access. A further objective is to promote a network of forest tracks suitable for cycling as part of the National Cycle Network and the Integrated Transport Strategy. In addition, it aims to improve recreational and other facilities through private-sector partnerships. The ‘**Woods for People**’ initiative works to promote and deliver accessible woodland, particularly in areas of high deprivation and higher density populations. The National Assembly for Wales **Strategy for Trees and Woodlands** (2001) recognises that woodlands can provide social benefits to communities. The Woodlands for People initiative is designed to use

woodlands as a social and cultural asset for some of the most disadvantaged communities and aims to maximise the use of woodlands for learning.

In **Ireland** the **NeighbourWood Scheme** offers considerable support to local authorities, community groups, environmental NGOs and private woodland owners to work in partnership to develop appropriate woodland amenities in and around villages, towns and cities. Such amenities, designed and equipped for public access, recreation and enjoyment, will impart a wide range of benefits to the surrounding communities. These so called “neighbourwoods” will represent a resource for all and will form an integral part of the locality and community life.

During the 1980s, extensive abandonment of farmland was expected in **Denmark** as a consequence of the massive surplus of agricultural production in EEC. Wood production was seen as a potential use of the marginal farmland and in 1989 the parliament agreed upon doubling the Danish forest area to 20-25 % within a tree generation of 80-100 years. The Danish national forest programme from 2002 still pinpoint this strategic aim, but the arguments have shifted towards more emphasis on *recreational* and environmental values – especially in relation to urban areas and ground water protection (The Danish national...2002).

To stimulate the recreational aspect of forests the **Flemish Government** has created a legal method of implementing ‘play forest or play zones in forests’ for the youth (a play zone is the legal name, play forest is the popular name used by the youth). In public forests the local youth council has to give nonbinding advice to the owners of the public forests about how they plan to create a play zone in their forests. In the Access regulation concerning the accessibility in occasional use of forests (1993) there is a subsidy for private forest owners to create play zones. The recently reorganised Forestry Administration (the Agency for Nature and Forestry) is currently (2006) working on a new and updated implementation order concerning accessibility for occasional use of forests. In the **Walloon Region** there are several other documents which take forest recreation into account. For example the Framework of the development of the regional area (1999) considers the importance of outdoor recreation in forests with regard to other functions of the forests.

Summary of findings: The included “other policy” documents, mentioning outdoor recreation, are heterogeneous across the nations. Some northern and Benelux countries have established additional policies to regulate outdoor recreation. Outdoor recreation is often embedded in a broader context of environment and economy. The documents are either connected to the development of rural areas or, more often, to landscape spatial policy, including access regulations. Additionally, some documents cover the topic of woodlands or forests in/close to urban areas to provide social benefits to communities, especially in countries with fewer forests like the UK and Ireland.

2.7 Monitoring

In this section of the paper it will be described how and to which extent *monitoring* of outdoor recreation is mentioned in the different policy documents of the participating COST countries. Monitoring is mentioned in national policy documents in only a few countries.

Outdoor recreation and the importance of outdoor recreation are mentioned several times in the document: “The **Danish National Forest Programme** in an International Perspective” (2002). Access to up to date and relevant knowledge is seen as the basis for forest policy and will be achieved through research, education, dissemination and information efforts. The linkage between forest research and forest policy is seen as particularly important for a sound development of the forest sector. This is in accordance with proposals for action from the Intergovernmental Panel on Forests (IPF) and Intergovernmental Forum on Forests (IFF)⁶. Furthermore, resolutions from the Ministerial Conferences in Helsinki and Lisbon also state that European countries are obliged to improve and adapt their national forest monitoring programmes and in particular document their efforts with respect to sustainable forest management operations. In Denmark, this will be put into practice through, for instance, following and documenting the conditions and development trends in forests, and documenting the multiple functions of the forests (wood production, forest health, biological diversity, *outdoor recreation*). In the coming years, forest-related research will, in particular, be concentrated on environmental economics and environmental sociology, as well as environment and health, including outdoor recreation. This will incorporate studies of the value of larger afforestation projects or other landscape management/nature rehabilitation projects, sociological studies of forest owners, forest managers and other stakeholders’ motives and needs, as well as a new national outdoor recreational use survey.

Finnish indicators for sustainable forest management are based on the European document “**Pan-European Indicator for Sustainable Forest Management**” (see e.g. section 2). A Finnish report about sustainable forestry (State of forestry... 2000) includes Criteria 6: “Maintenance of other socio-economic and cultural functions and conditions”, within which criteria indicator 6.10 “Recreational use of forests” mentions recreation and the use of recreation services (average number of use days per year and the total number of visits to national parks). The development of suitable ways to measure criteria and indicators of social sustainability, which also include recreation and nature tourism in the forest sector, is currently underway in Finland. In 2003 the Finnish government decided to implement a programme for development of nature based recreation and tourism (Ohjelma luonnon...2002). The programme proposes 30 different steps to promote recreation in the wilderness and nature tourism. The aim was to clarify and harmonise the responsibilities and goals of public agencies in nature tourism and recreation administration and management on a national, regional and local level, to create better preconditions for activities in the wilderness and to preserve attractiveness. Better cooperation and more product development as well as increased knowledge and know-how are also included in the aim of the document. These steps support the development of recreation in the wilderness and nature tourism on the basis of demand. Another part of the programme is the development of knowledge about demand through inventories, assessments and research in the sector. In addition, the programme aims to develop methods to recognize potential customers, their needs and satisfaction. It also states that basic statistics and prognosis of forest recreation will be produced. The health, economic and social effects of forest recreation are seen as future research topics.

⁶ For more information on UNFF Intergovernmental Panel on Forests (IPF) and Intergovernmental Forum on Forests (IFF) see e.g. <http://www.un.org/esa/forests/documents-unff.html>

Germany also recognises the importance of knowledge regarding the use of different outdoor recreation areas. At State level, the standardised tool of **forest function mapping** estimates recreation use levels based on infrastructural developments. It describes the geographic position of the different recreation areas, their infrastructure and their distance to urban areas. The document differentiates between two use levels: Use level one (highly used > 10 persons/ha/day) and use level two (less used areas 1-10 persons/ha/day). Some States do this mapping very ambitiously, others seldom (Governmental Forest...2001).

In **Switzerland** the importance of monitoring is also recognised. The recently passed law of nature protection (NHG) is the basis for the creation of regional parks and nature urban parks and wherever these parks are established the park organisations must establish a monitoring system. The responsibility to design and realise the monitoring is at the regional level, although it will be supported by state funds (BUWAL 1996, Horat & Bachmann 2004, Keller & Bernasconi 2005).

Although forest recreation monitoring is not a main purpose in **French forest policy**, several national policies or assessment documents include elements which can be considered as a basis for further development of forest recreation monitoring (Instruction on forest... 1964, Guidelines for... 1979, Twenty years of... 1986, Guidelines: Guide for... 1997). The **French Indicators for sustainable forest management** (2005) are updated every fifth year; they document a range of indicators on forest recreation, such as forest surface/person at national and regional level; number of forests visits etc. (This is in accordance with MCPFE Indicator 6.10). Moreover, the 2005 version introduces MCPFE indicator 6.11, “number of forest areas with cultural and spiritual values” – most of them are places of interest for visitors. In 2006 the “**Comprehensive assessment of the French state-owned forests**” (2006), was carried out by the National Forestry Office (ONF). It gives a complete overview of the government-owned forests and will be updated every five years. Socio-cultural aspects are documented with four indicators: population around forest areas, recreation facilities, historical monuments and remarkable trees.

The Cyprus indicators for sustainable forest management recognise the importance of forest recreation and introduce a specific indicator (MCPFE Indicator 6.10) for the monitoring of forest areas, in hectares, *and* recreation facilities accessible and available for public recreational use (Cyprus forestry department 2006).

Summary of findings: Monitoring the needs for outdoor recreation is only found in the national policy documents of six COST E33 surveyed countries (Table 2.1). Within these documents, information about forests and its uses are seen in Denmark as a necessary precondition for an effective forest policy formulation, in accordance with the Intergovernmental Panel on Forests (IPF) and Intergovernmental Forum on Forests (IFF). IPF and IFF are, together with the resolutions from the Ministerial Conferences in Helsinki and Lisbon, working towards the adaptation of national forest monitoring programmes. The implementation of national forest monitoring programmes varies strongly, but the need for (recreation) monitoring programmes is stated. Among the countries aiming for monitoring systems on a national level, further development is required for standardised methods for measuring the availability of areas for recreation and tourism and the recreational use of nature.

Table 2.1 presents the information obtained from each country and serves as basis for the following discussion and conclusions.

Table 2.1. Information on outdoor recreation aspects in policy and legislation documents from the analysed COST E33 member countries (2006-2007).

Country	National Forest Programme implemented/ (in progress)	Outdoor recreation mentioned in National Forest Programs	Forest law exists	Outdoor recreation mentioned in Forest law	Specific regulations concern. access mentioned in Forest law	Other relevant legislation on outdoor recreation exists	Information and monitoring needs mentioned in the different policy documents
Austria	(x)	x	x	x	x		
Belgium	no inform.		x	x	x	x	
Croatia	(x)	x	x	x	x	x	
Cyprus	x	x	x	x	x		<ul style="list-style-type: none"> • forest areas • recreation facilities
Denmark	x	x	x	x		x	<ul style="list-style-type: none"> • outdoor recreation in general • national outdoor recreation use survey
Finland	x	x	x			x	<ul style="list-style-type: none"> • recreational use of forest • basic statistics and prognosis of recreation • health, economic and social effects of outdoor recreation
France	x	x	x	x		x	<ul style="list-style-type: none"> • indicators: • number of forest visits • number of forest area with cultural and spiritual values
Germany	x	x	x	x	x	x	<ul style="list-style-type: none"> • forest function mapping
Greece	no inform.		x	x			
Iceland	(x)		x				
Ireland	x	x	x			x	
Latvia	(x)	x	x	x	x	x	
Lithuania	x		x	x	x	x	
Norway	cont. process		x				
Slovakia	x	x	x	x	x	x	
Sweden	cont. process		x				
Switzerland	x	x	x	x	x		<ul style="list-style-type: none"> • park monitoring • recreational functions in forest plans
UK	x	x	x			x	

2.8 Summary

Relevant EU and national policy and legislative documents were analysed by the COST E33 working group 2 members. Available information about recreational demand and supply as well as monitoring practises was extracted for international comparison. The results of the document analysis give insights into national policy setting and legislation in the field of outdoor recreation and highlights commonalities, gaps and future needs.

The conclusions from the document analysis are limited as only eighteen European countries gathered information. In addition it is not known whether the national representatives have identified all existing relevant documents. The summary of results has used intense information exchange and careful analysis to attempt to give the most complete picture, notwithstanding limitations in terms of time and resources.

Most countries have implemented a **National Forest Programme** or an implementation process is currently in progress. Often, outdoor recreation is part of these programmes. The need for providing recreation opportunities and for suitable management by public authorities is often specifically expressed – as it also is on the European level. The social dimensions of forests are given different levels of priority by the different countries. Only a few countries assign outdoor recreation very high political priority, including objectives and strategies. Often, these countries have low forest cover and/or large distances between forests and urban areas. The analysis indicates that some of the less forested European countries (such as Denmark, the Netherlands, and the UK) as well as Cyprus have strong social needs for outdoor recreation. Because of the lack of suitable natural resources in these countries, public authorities have the duty (and opportunity) to manage forests according to the needs of the people. Within these countries, the development of recreation opportunities is politically important for planning and management, and is perhaps associated with the lower importance of other forest functions, e.g. timber production.

In most other European countries, the forested areas are comparably larger and forests are traditionally managed for multifunctional purposes. Within these countries, timber production is traditionally of high economic importance. Extremes can be found in Scandinavian countries like Sweden, Finland and Norway, where timber production is of high economic value and outdoor recreation, as a separate forest function, are not mentioned in forest policy documents. In most of the countries analysed, traditional forest uses have to be combined with recreational demands. Diverse and often opposed interest structures exist and negotiation processes for policy setting are complex in terms of multifunctional management. In addition, the provision of recreational opportunities are usually uncompensated, often due to traditional open access rights and few exclusion possibilities exist. Therefore, although the societal importance of providing recreation opportunities is often stated in forest policy, the actions required for recreation opportunity improvements, management and monitoring are mostly not specified, and are often left to regional and local level decision-makers.

National Forest Programmes exist in most countries, though work is still in progress in others. Nevertheless, it is not yet clear whether outdoor recreation will achieve the same level of importance as other forest functions have for national public authorities. The need for information on usage (monitoring) is found only one of the surveyed National Forest Programmes (Denmark).

In contrast, legislation is more precise in regulating recreational use on a national level. The regulation of access for recreational purposes is included in most relevant **forest and/or nature conservation/protection legislation**. Traditionally, many countries offer free access to forests for recreational purposes. The associated national documents often recognise the societal importance of outdoor recreation and highlight the need to offer recreational opportunities to the broad public. Some national documents specify access limitations (in terms of time, activity or spatially), often due to the protective purposes of the natural resource. Legislation and regulation in terms of access appear to be pretty well defined in most countries.

Chapter 3. State of art of recreation inventories in European countries

3.1 National recreation demand inventories and surveys

Jeffrey Dehez, Vincent Colson, Carsten Mann and Tuija Sievänen

3.1.1 Introduction

The purpose of this chapter is to summarise existing experiences in recreation monitoring in European countries. The information was gathered from COST E33 experts. The review is based on national surveys conducted over the last thirty years in the countries of COST Action E33 members. In COST E33 23 countries signed the Memorandum of Understanding, of whom 21 countries had members in working group 2. In addition, some literature research was made to complete the material from other countries. Only population-based national surveys, which provide relevant information on forest recreation, were considered.

This is a first overview of national monitoring practices across Europe. We first introduce the status of monitoring in general. Secondly, we describe examples of different national recreation monitoring systems, and then we analyse survey objectives, methods and variables used.

One of the challenges of this type of cross-cultural, comparative review is that the basic approach to recreation surveys varies substantially across Europe. The definition of the type of natural environment used for recreation is certainly one of difficulties concerning recreation research. The terms “woods” or “woodlands” (without any clear definition) seem to have been adopted in many countries. This approach assumes that the perception of forest is similar in different cultures and countries, a premise that is doubtful. On the other hand, when forest is defined it may include other areas. In the Netherlands, for instance, moors are added to woodlands. In Finland, the definition of recreation environment is ‘nature’ including forested land, peatland, agricultural land, sea, lakes, rivers and even urban parks and green areas in cities. e.g. all natural (green) environment available for recreation.

3.1.2 The status of national recreation surveys

Our study of the European experience of nation wide recreation monitoring showed that national household surveys were undertaken in 14 of the 25 surveyed countries (Figure. 3.1, Table 3.1). Using a time frame of 35 years (1970-2005), 66 surveys were identified, which is a relatively high number considering that recreation monitoring and social benefits are in general seldom a priority within national forests programmes (see chapter 2). As this review may have missed some studies, the results can only really provide a general picture of the underlying situation.

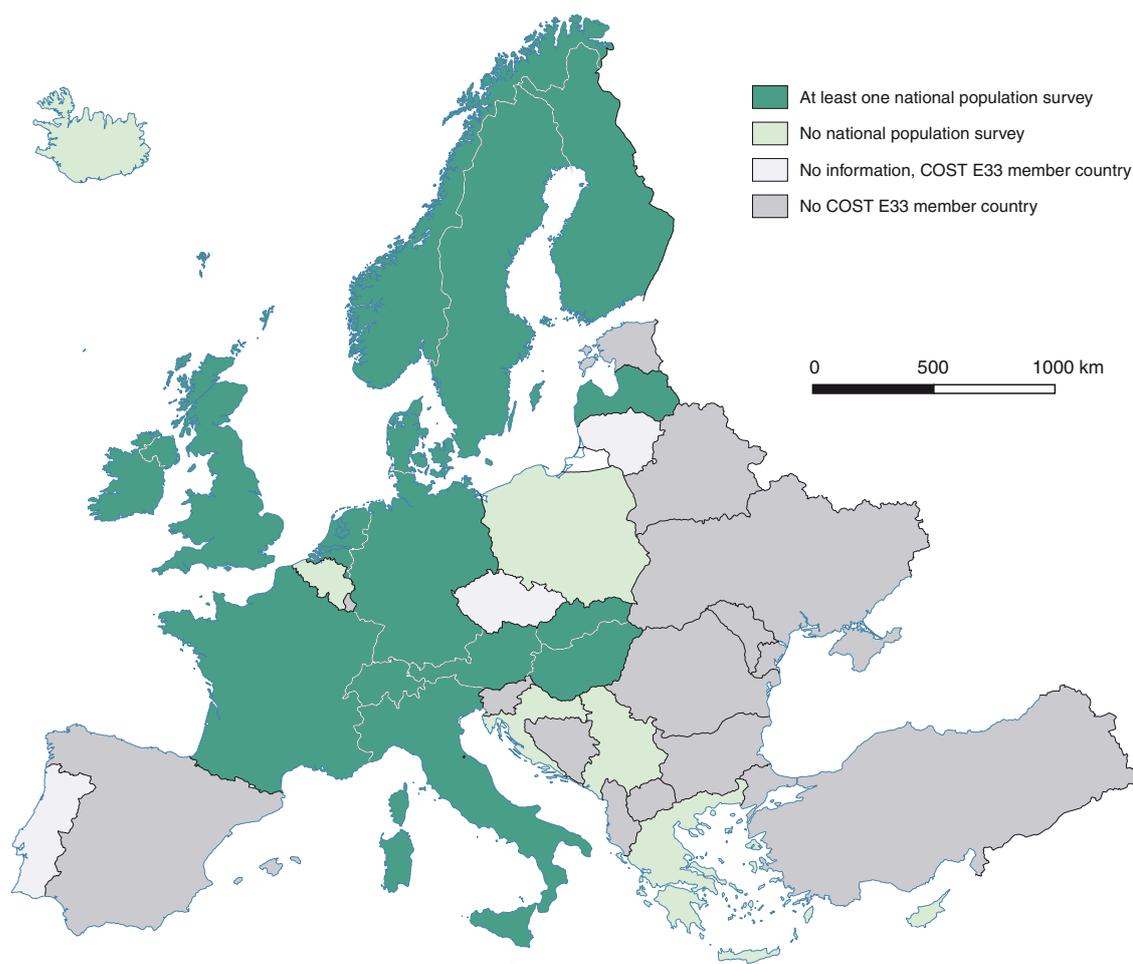


Figure 3. 1. Status of nation wide recreation surveys in European countries

Table 3.1. Number of national recreation surveys found in 12 countries in 1970–2005

Country / year	1970–2005	on-going studies 2006–	Monitoring strategy
Austria	1	?	no
Denmark	4	yes	no
Finland	4	yes	yes
France	6	no	no
Germany	2	yes	?
Hungary	2	?	no
Ireland	2	no	no
Norway	13	yes	yes
Slovakia	4	no	no
Switzerland	4	no	no
The Netherlands	5	yes	yes
U.K.	19	yes	yes
Together	66		

The overall status (2008):

- 14 countries have made at least one national survey during the past 35 years: Austria, Denmark, Finland, France, Germany, Hungary, Ireland, Italy¹, Norway, Switzerland, The Netherlands, Slovakia, Sweden¹ and the UK.
- 8 countries have no national recreation surveys: Belgium², Croatia, Cyprus, Greece, Iceland, Latvia, Poland and Serbia.
- information was missing from 3 countries (Czech Republic, Lithuania and Portugal)

Figure 3.1 illustrates the geographic distribution of recreation monitoring on a national level.³ Recreation surveys have more commonly been undertaken in Nordic and “Central” European countries, but have occurred less often in Southern and Mediterranean countries.

Table 3.1 shows that experiences have varied considerably across Europe. Some countries have developed quite a long experience by conducting a number of surveys over time (UK) while some others have conducted very few surveys (Austria). In some countries (the UK, Norway, The Netherlands and Finland) a real monitoring process (by repeating surveys on a periodical basis) has been established, however, in most countries, recreation surveys are carried out without any long term strategy or planning.

The original purposes, frameworks and settings for surveys that included recreation data are also very different. In the review process, we found four main approaches (Table 3.2): forest use, recreation in general, living conditions and environment. We have also sub-divided the recreation in general category into two subcategories: outdoor recreation (e.g. every types of open spaces or nature) and leisure in general (including sports, partying, music, urban activities, etc.).

This is an interesting and useful point for two reasons. Firstly, for example, by recognising that information related to forest recreation can originate from either forests or non-forest agencies or institutions, we are able to better examine the sources and quality of recreation survey data. Secondly, the structured general survey approach can ease the interpretation of data, and help to identify possible bias (for example over or underestimation).

Table 3.2. Main approaches and frameworks of recreation surveys in 12 European countries

Approach	Forest use	Recreation in general		Living conditions	Environment
		Outdoor recreation	Leisure in general		
Country	Denmark, France, Germany, Hungary, Ireland, Switzerland, U.K, Slovakia	Finland, Norway	Denmark, U.K., The Netherlands,	Norway	Austria

¹ Because information was gathered from literature, it is more limited than that concerning other countries.

² Although separate surveys exist in the three regions of the Belgium Federal State (Wallonia, Flanders and the Brussels Capital region), no national recreation monitoring strategy has been developed. Each region has its own forest policy.

³ Grey shaded areas represent countries not participating in COST E33.

The first column of Table 3.2 details countries where recreation in forests has been the main focus of surveys. The surveys have been entirely designed for forest recreation and data has been specifically collected to measure forest use. In the second and third columns, recreational use of forests is one of the possible options within a wider recreation environment. The definitions of recreation environments vary and include, 'nature in general', 'open space' and 'outdoors in general'. For example, in Finland, the focus of the recreation survey was outdoor recreation in general and the definition of environment was 'nature' including bodies of water and urban green environment. Questions were asked concerning the specific type of environment used on the last (most recent) recreation trip or occasion. In the Finnish survey, typically a number of different environments were visited during one recreation trip. About 80-90% of all recreational visits or trips took place in forest environment, at least in part.

In the Netherlands and the UK, recreation topics have been surveyed within general leisure time surveys and recreation activities are measured as a part of a wide range of leisure activities. The context in several of the Norwegian surveys was even broader (a study of living conditions). The main problem in terms of achieving comparable forest recreation data from different countries is that the survey design measures do not capture recreational use of all types of natural spaces equally. In addition, Denmark, the UK and Norway have two methods for collecting national forest recreation data. In the past, many of the UK recreation statistics were derived from leisure surveys (e.g. GBDVS), and similarly, in Denmark, some information on forest recreation is also obtained from leisure surveys.

To summarise some national features of recreation surveys a simple typology based on two criteria was formed and 5 groups of countries with different levels of experience of conducting recreation surveys were identified. As Figure 3.2 shows, experiences vary considerably among the countries. In the top right, there are countries with a high experience of monitoring and a strong interest in forests (e.g. specific forest-related surveys). In contrast, the countries in the bottom left have little experience of surveying and less focus on forests.

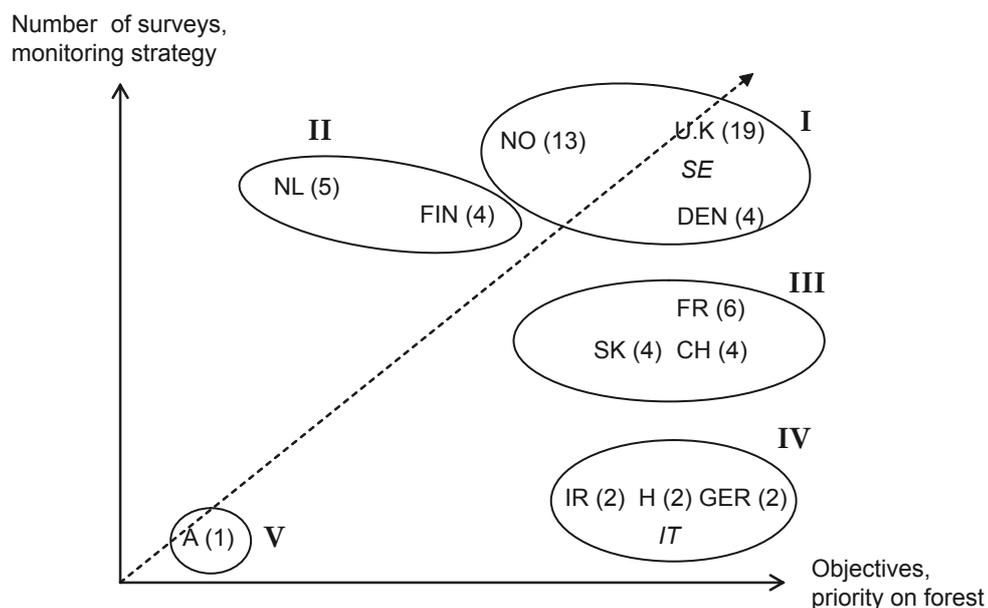


Figure 3.2. Standards of recreation monitoring in countries with national surveys in 12 countries

The first level corresponds to the countries where a definitive monitoring strategy dedicated to forest recreation has been implemented over a long period of time. Within this group, the UK is certainly one of the most experienced with conducting national recreation monitoring. Since the early 1990's, two types of survey have been applied and repeated on a periodic basis: the "GB Day Visit Survey" (GBDVS) and the "Public Opinion on Forestry" (POF). UK experts indicated that household surveys have been used to collect information about recreation in Great Britain since the 1980's. Those surveys have included visits to the countryside and seaside as well as to forests and woodlands. The "Day Visit Survey" was piloted in 1992 and was then in full operation from 1994 to 2002-2003 (four surveys). Following devolution, the countries that make up the UK now have their own policies, directions and priorities and thus it appears that the GB wide recreation surveys have ceased. Instead, individual countries are undertaking their own surveys, e.g. the Scottish Recreation Survey will run continuously from 2003 to 2013, the 2005 England Leisure Visits Survey reported in early 2007 and fieldwork for a Wales Outdoor Recreation Survey commenced in early 2008. In addition, POF surveys have run every two years since 1993. Altogether, there have been 19 GBDVS and POF surveys since the 1990's. Norway (NO) also has a strong monitoring tradition (13 national surveys since the 1970's). The Norwegian studies are not strictly dedicated to forests, but rather to outdoor recreation in general. Despite the relatively low number of surveys (four), Denmark (DK) also belongs to this first group. Danish forest-related surveys have used the same methodology over the years, and the next survey is planned for 2008.

The second group of countries identified have a recreation monitoring strategy but the objectives of the survey are not strictly to examine forest use. In these cases, recreation information is assumed to be well organised, thus allowing comparisons over time. Nevertheless, recreation data related strictly to the forest environment is often very limited. In Finland, the first National Outdoor Recreation Demand and Supply Assessment project (LVVI) was conducted from 1997-2001. It was undertaken by several institutions and universities and was financed by five ministries (in addition to the research institutions). It is planned to repeat the survey every ten years (the next LVVI2 takes place in 2008-2011). Statistics Finland has conducted a series of Leisure surveys that have included partial information on outdoor recreation, some of which, such as that concerning picking wild berries and mushrooms are directly connected with forests. In the Netherlands, the monitoring strategy is also prominent. During the nineties and early two thousands, Statistics Netherlands carried out three national surveys on leisure activities (Day Trip survey), however the natural environment (including forests) was only considered for a restricted set of activities. In April 2004, a new type of survey, covering forest recreation topics to limited extent, was launched and is planned to be repeated every year (Continuous Leisure Survey CVTO).

Within the third group of countries at least four surveys have taken place during the past 35 years, e.g. one survey approximately every ten years. The surveys are generally not connected to each other so that comparisons are challenging due to methodological differences. However, the surveys were designed exclusively to examine forest use and give precise and valuable information. This group includes France (FR), Slovakia (SK) and Switzerland (CH), with France and Norway seeming to having the oldest surveys.

In the fourth group contains Germany (G), Hungary (H) and Ireland (IR). These countries began surveys very recently (nineties or later) and they have focused solely on forest use. Austria (in its own in the fifth group) has conducted a survey on environment perceptions but it contained very little information on forest use.

Based on literature research and experts opinion, Italy (IT) and Sweden (SE) were placed into groups 4 and 1 respectively. Some information on Italy and Sweden can be found in Scrinzi et al. (1995) and Eurostat (2002). Other countries whose experts have been contacted declared no national household surveys during this period. Southern and Mediterranean countries generally have less experience in recreation monitoring compared to Nordic countries.

Several interesting studies have not been considered in the review presented here. Firstly, some countries have national monitoring systems that are not based upon household surveys. Instead, they rely on a network of on-site studies (applied on a sample of representative sites) whose results are then aggregated at the national level. This strategy can raise useful data such as the total number of visits to forests however it suffers from the limitations inherent to on-site surveys such as the lack of information on non-visitors, which can be obtained from surveys of the wider population. This applies to some of the UK visitors monitoring studies of Forestry Commission managed forests and in Germany (Elsasser 2001).

Secondly, we also found “regional” studies, e.g. household surveys made on intermediate levels and using techniques similar to nation wide surveys (sampling, telephone, postal). In some countries the forest policies are formulated and applied regionally, and regional characteristics of forests and forest use are so different that it is more appropriate to adopt a regional recreation research methodology. Examples of countries are Belgium (due to Regional forest policy competences) and France (due to the diversity of landscapes). In France this approach is well developed. During the past 15 years, regional recreation studies have been applied in several parts of the country: Paris agglomeration (Ile de France), the North East (Lorraine), Mediterranean regions and very recently in the South West (Aquitaine). Aggregation at the national level is seldom efficient because of population’s heterogeneity and comparisons between regions are challenging. Thus, the introduction of a national survey structured regionally could sometimes be more efficient.

Finally, we conclude this review with a brief description of the only Pan European survey dedicated to recreation in forest. It was conducted in 2002 by the members of the European task force on forest accounting, whose objective was the creation of a European framework for integrated environmental and economic accounting on forests (IEEAF). In this context, a pilot study has produced a set of accounts for the environmental and recreation functions of forests, which should finally be added to the productive functions accounts (wood or non-wood) (Eurostat 2002). Four countries took part in the process (Austria, Finland, France and Sweden⁴) and five functions have been identified (carbon binding, biodiversity, protection, health of forests and recreation). Only two indicators were proposed to measure recreation: recreation areas of forests and wooded lands, and the total number of visits (detailed by main activities). For the collection of data, different levels of monitoring were available: two countries used existing recreation monitoring systems (Finland, Sweden), one initiated a survey for this purpose (France) but the other two countries have no official source (Austria, Germany). Furthermore, little is known about the methodological aspects. Thus, the results are difficult to compare and some figures are very different from our own estimations. The authors concluded that the data available on recreation is not consistent enough for the set up of a European monitoring system by Eurostat. More effort is needed and some others functions of forests (mainly environmental) seem more advanced at this point.

⁴ Germany gave information for some of the environmental functions.

3.1.3 Methodologies and variables used

It was impossible to get a complete overview of all the methods and variables used in all 66 identified surveys (see above). Unavailability of the older surveys and language barriers were some of the biggest obstacles. We decided to select the most reliable, recent and available survey in each country. If major data was missing or subject to obvious bias, we selected two surveys to strengthen the results (France and Germany). The selection is given in Annex 2. These studies have been carried out between 1994 and 2005. We examined the various methodologies and variables that have been used in the selected surveys. Considering the latter, we further pointed out several measurement problems that must be taken in account when comparing such diverse information sources.

Methodologies for data collection

Telephone and postal surveys were the most commonly used technique (Table 3.3). Postal surveys were used in six countries with quite different response rates (from 15% in Ireland to 84% in Denmark). Face to face interviews (certainly one of the most expensive methods) were used in four surveys (Austria, France 1, Hungary and the UK). Note that a few countries combined two methods by using telephone and postal surveys (Finland and The Netherlands).

The definition and characteristics of samples also varied considerably. An examination of the sample age pattern and statistical unit highlights two main differences (Table 3.4).

With respect to age, a number of surveys referred to individuals aged between 15 and 75-80 years old (Denmark, Finland, France 1 and Norway's) while others referred to "adult population" without any other details⁵. Austria, Germany, Hungary, the UK, Slovakia and Switzerland didn't use an upper limit but 14 years was the lower limit for the German study (Elssasser 2001). In The Netherlands no age limit is fixed. People in institutional households (such as retirement homes etc.) are excluded and young people are divided in two categories. The first category relates to

Table 3.3. Methodologies used in national recreation surveys

Countries	Techniques
Austria	Face to face interview
Denmark	Postal
Finland	Telephone and postal
France 1	Face to face interview
France 2,	Telephone
Germany 1	Telephone
Germany 2	Telephone
Hungary	Face to face interview
Ireland	Postal
The Netherlands	Telephone and postal
Norway	Postal
Slovakia	Postal
Switzerland	Telephone
UK	Face to face interview

Table 3.4. Sample characteristics in national household surveys

Countries	Population
Austria	15 yrs old <
Denmark	15 yrs old < < 76 yrs
Finland	15 yrs old < < 75 yrs
France 1	15 yrs old < < 75 yrs
France 2	Household
Germany 1	14 yrs old <
Germany 2	18 yrs <
Hungary	18 yrs <
Ireland	Adult population
The Netherlands	No limit
Norway	15 yrs old < < 80 yrs
Slovakia	16 years <
Switzerland	18 yrs <
UK	16 yrs old <

⁵ in all likelihood with a lower bound superior to 15 years old

age 12 or younger (questions are answered by parent or guardian) and the second category is for those aged between 12 and 16 (questions are then answered either by person him/herself or by a parent or guardian).

We found that almost all studies were based on individuals but one (France 2) referred to household by arguing that “recreation in forests is a family activity”. Such a practice is valid but it has strong consequences for question format and on the “visitor” definition. Problems of interpretation can also arise if preferences and activities are not the same for the household in general and for the person interviewed in particular⁶.

Variables used in national recreation surveys

The diversity of variables used in the national recreation surveys is obvious. We chose a set of ten variables and looked for them within each survey (Table 3.5). For most surveys we examined the original version of the survey questionnaire.

Questions related to the numbers of visits or frequency of visits, socio-demographics characteristics and recreation activities were posed in almost all surveys. In Finland, The Netherlands and Norway, the annual number of visits is known for a number of activities (see further). Data on “access” (transportation, distance, duration) was also typically included. Surprisingly, recreational preferences (either on natural environment or facilities) were not investigated often. They were included in Denmark, France, Germany, Hungary, Slovakia and Switzerland. All of the studies investigated did focus on the use of forest or nature as a recreational environment rather than on leisure behaviour in general (see Table 3.2). A ‘willingness to pay’ (WTP) measure, based on strict economic theory, was rare (Denmark, France 2, Germany 1, Ireland, and on state areas in Finland). More general questions about access fees and financing had taken place in some countries (in France 2, Hungary and Switzerland). Some studies did take the distance and transportation variables into account to implement the Travel Cost Method, which is a well known technique of non-market good valuation (e.g.. in France, see Peyron et al. 2002).

Table 3.5. Examples of variables used in national recreation surveys

Variables	Countries
Number of visitors / Frequency of visits	A, CH, DK, FIN*, FR1, FR2, GER1, GER2, H, IR, NL*, NO*, SK, UK
Socio-demographics variables	A, CH, DK, FIN, FR1, FR2, GER1, GER2, H, IR, NL, NO, SK, UK
Recreation activities	CH, DK, FIN*, FR1, FR2, GER1, GER2, H, NL*, NO*, SK, UK
Travelling distance	CH, DK, FIN, FR2, GER1, H, NL, SK, UK
Means of travel	CH, DK, FR2, GER1, H, NL, SK, UK
Duration of the visit / of the stay	CH, DK, FR2, GER1, H, NL, SK, UK
Distance to close-to-home forest	DK, FIN, FR1, GER1, SK
Preferences (recreational infrastructure)	CH, DK, FR1, H, SK
Preferences (landscape/forest structure)	DK, FR1, GER2, SK
WTP (and other economic values)	DK, FR2, GER1, SK

* partly

⁶ In this case, the main topic was economic value of recreation and that suggested that the household was the appropriate unit, especially for transportation means.

Other research items, which are not considered in detail here, were occasionally found: group size and group composition, user motivation, user satisfaction, health (in relation to forests), visits during childhood, social impact/user conflicts, ecological impact, constraints, regional economy. Each of them refers to the specific topic of the study as well as to the overall perceptions of forests in a country (regarding productive, environmental or social functions).

In many surveys, a large range of recreation activities was included in the national surveys. However, for example, in Norway, precise data was only collected for hiking in forests. Many other recreation activities (skiing, picking berries and mushrooms, fishing, and hunting) were not strictly applied to forests and therefore underestimation of the total number of recreation visits is inevitable, if calculations only consider those visits related to forests. On the other hand, hiking is the main recreational use of forests, which diminishes the possible bias.

The definition of recreation activities and categories taken into account in recreation surveys can be quite different due to culture-related perceptions of forests and landscapes, or climatic reasons. Some national surveys include picking activities (berries, mushrooms), fishing or hunting, which are not always considered as recreation activities but rather just harvesting of forest products in other countries.

Some of the national recreation surveys include an economic section to assess the monetary value of informal recreation. In some cases, this economic approach was the dominant objective and a strong incentive for implementing the study, e.g. in Ireland and, to a lesser degree, in Germany and France. National economic valuation also was also part of the studies in Finland, Switzerland and the UK.

3.1.4 Summary

This work is the first attempt to review and assess the monitoring processes of the recreational use of forests at a national level in European countries. Using a time frame of 35 years (1970-2005), we identified more than 60 population surveys, which have been dedicated at least partly to this subject. We identified experiences in 14 (Austria, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, Norway, Slovakia, Sweden, Switzerland, The Netherlands and the UK) of the 21 countries examined. This number is surprisingly high considering that social monitoring is seldom a priority in national forest programmes. Some countries have developed a long tradition in forest recreation monitoring (the UK, Denmark and Norway) and others have only more recently introduced comprehensive programmes (Finland). Interestingly, monitoring forest recreation concerns countries with dense (Finland) and more limited (UK, Ireland and Denmark) forest cover.

A diversity of survey objectives and practices is evident. The focus and topics chosen for monitoring vary remarkably. In some studies, recreation behaviour patterns are the main focus, in others the recreational use of forests, and in some cases, the economic valuation of recreational use is the main interest. The methodologies and variables employed vary between countries and surveys. The population groups selected, sample sizes, and data collection methods are typically quite different. Possibilities for comparisons of results of the national recreation surveys are very limited.

3.2 Site specific studies of recreational use in forests

Arne Arnberger and Neil Grant

3.2.1 Introduction

Data on recreational use of forests are essential for a range of management and planning decisions. On-site data on recreation use can help determine the effects of recreational activities on the natural resource, reveal visitor compliance with use regulations, assist in scheduling of maintenance tasks and allocating human and financial resources and are the grounding for the development of appropriate marketing strategies to specific user groups (Cessford & Muhar 2003, Keirle 2002). Therefore, monitoring of on-site visitors has long been regarded as an important component of recreation management (Arnberger et al. 2005, Coch & Hirnschall 1998, Hendee & Dawson 2002, Hornback & Eagles 1999, Madden & Love 1982).

Over the past decades, numerous techniques and methods have been used to monitor visitor flows in recreational and forest areas (Arnberger et al. 2005, Cessford & Muhar 2003, Hornback & Eagles 1999, Gasvoda 1999, Kajala et al. 2007, Watson et al. 2000). Forest and recreational area managers should decide on the most appropriate observation strategy and the most suitable methods for identifying visitor use characteristics, for measuring total recreational use loads, for describing the spatial and temporal distribution of use, or detecting changes and trends in use pattern and visitor characteristics. The more reliable the data from visitor counting and surveying techniques and systems, the better the outcomes from its applications in processes such as visitor and natural resource management, visitor flow modelling, visitor impact assessment and natural resource and tourism management policies and planning in and outside the forested area.

This chapter examines the methods used and considers which data on forest recreation are collected by site-specific surveys conducted by those countries participating in Cost-Action E33 (in working group 2). The data assembled here are derived from the following sources of information provided by the participating nations:

- a structured questionnaire specifically developed for this analysis;
- country reports, summarising the monitoring position in each country;
- lists of publications of national importance;
- a preliminary survey report regarding monitoring of recreational use in nature areas (Skov-Petersen & Jensen 2005).

Unfortunately, not all countries provided comprehensive information about the current status of surveys on forest recreation usage. Therefore, the authors gathered additional information by investigating other information sources for details of surveys of on-site forest recreation use. Journal publications, master theses and conference proceedings, such as the proceedings of the MMV-Conferences and IUFRO conferences (Arnberger et al. 2002, Sievänen et al. 2004, Siegrist et al. 2006) were all examined to obtain a broader view of international efforts. Another important source used was the report on the 'Monitoring Outdoor Recreation in the Nordic and Baltic Countries' project (Kajala et al. 2006). Nevertheless, for about one third of all countries involved in COST E33 working group 2, little data are available (Table 3.6).

Table 3.6. Data sources and data available per country

Country	Questionnaire on site specific studies	Country reports	Additional sources ¹
Austria	X	X	
Belgium-Flanders		X	X
Belgium-Walloon	X	X	
Croatia	X		
Cyprus	X	X	
Czech Republic			X
Denmark	X	X	X
Estonia			X
Finland	X	X	X
France		X	
Germany	X	X	X
Greece	X	X	
Hungary			
Iceland		X	
Ireland		X	X
Italy			X
Latvia			
Lithuania			X
Norway			X
Poland			X
Slovakia		X	
Sweden			X
Switzerland	X	X	X
The Netherlands	X	X	X
United Kingdom	X	X	X

¹Publications in journals, proceedings, reports etc.

The data presented here are mostly from the last decade, however, to allow for more detailed analysis on some specific topics (such as sample sizes, response rates and variables collected) the data may correspond to a longer time period (around the last two to three decades). In summary, although this chapter uses all available information to provide an overview, due to unavailable data and other omissions, it does not provide an exhaustive all-encompassing review of on-site recreation monitoring in European forests.

3.2.2 Strategies for data collection

Several data sampling strategies were found among European studies on forest recreation and tourism, and for the purposes of this report, they have been divided into standardised and non-standardised approaches. A standardised data sampling strategy may allow comparison of recreation use:

- among several spatial units, or between several time periods, within one forest (intra-area comparisons),
- among a number of forests (inter-area comparisons), and
- among a number of forests across space and time.

Table 3.7. Strategies used for data collection and country examples

Standardised approaches	National site-specific studies	Denmark, Finland, United Kingdom
	Site-specific studies among several forests	Czech Republic, Estonia, France, Germany, United Kingdom
	Regional site-specific studies	Austria, Belgium (Walloon), Norway
Non-standardised approaches*	Site-specific studies	Austria, Belgium (Walloon/Flanders), Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Italy, Ireland, Latvia, Lithuania, Norway, Poland, Sweden, Switzerland, Slovakia, The Netherlands, United Kingdom
No site-specific studies		Hungary(*), Iceland(**)

* Counting devices in testing phase

** First monitoring efforts commenced in 2006

Standardised comparisons across space and time are conducted when there is a desire to monitor the development of visitor usage (and profile) between a number of forests across more than one time period (for example over the last ten years). Prerequisite for such comparisons is the application of a standardised sampling schema guaranteeing valid comparability both between forest sites and over time. Similarly, if the development of use intensities of one particular forest is of interest across a number of years, then any systematic comparisons require a consistent, standardised, structured approach. Some of these standardised approaches may provide a template for more European-wide standardisation monitoring of on-site recreation use.

Based on the particular data collecting strategy employed, three different categories of country groups can be formed (Table 3.7):

- countries which apply standardised approaches for inter-area or intra-area comparisons,
- countries not using standardised approaches,
- countries which have not yet carried out any studies.

Standardised monitoring approaches

The standardised approaches used by the ten countries identified in this group include both on-site counting and interviewing methods, although even the techniques used to conduct surveys using these methods can differ considerably between countries (Table 3.8).

Standardised monitoring approaches may consider every forest in a country or only a proportion of forests considered a representative sample within a country. These types of surveys can consist of an investigation of a number of forests within a region or community, or of similar forest types based, for example, on geomorphology, or of forests administered by one organisation such as a national forest agency.

Consequently, this category includes both countries with little experience of standardised approaches, such as France, and others, such as the UK, with a long history of such research.

Standardised nation-wide on-site monitoring requires a high degree of effort to organise staff and/or counting devices across several sites simultaneously. One strategy used to reduce these efforts, for example in the UK and Finland, is devise a data collection strategy, where instead of

Table 3.8. Examples for standardised monitoring strategies for on-site data collection

Standardised monitoring of recreation use in ...	Description	Number of areas	Country examples
Intra-area comparisons			
Time	Monitoring within defined time periods	1 forest ≥ 2 time periods	Austria
Inter-area comparisons			
Space	Time-parallel monitoring among several forests	≥ 2 forests 1 time period	France, Estonia, Norway
	Time-parallel monitoring among selected forests; other forests monitored within the next period as part of nation-wide monitoring	≥ 2 forests 1 time period	UK, Finland
Inter-area and intra-area comparisons			
Space and time	Time-parallel monitoring among several forests within defined time periods as part of nation-wide monitoring	≥ 2 forests ≥ 2 time periods	Denmark

surveying all forests simultaneously, a few forests are surveyed each year. One drawback of this approach is that it can limit the validity of inter-forest comparisons across time, for a number of reasons, including that different weather conditions may prevail across different time periods.

Of course, even time-parallel nation-wide monitoring can be affected by weather conditions, as, for example, storms may cover some parts of a country while elsewhere sunshine may dominate. As such, short-term monitoring, specifically for visitor counting on selected days, may not provide comprehensive information about forest recreation use. Long-term data, provided by counting devices (see below) can aide valid inter-forest comparisons by providing a buffer against some external effects such as the weather, festivals or spectator events (Arnberger & Eder 2007). Another factor essential for providing reliable data for inter-forest comparisons, is the selection of adequate counting or interview sites at each forest. Remarkable differences in use levels, visitor compositions and use patterns across time can be observed at different locations in one forest. However, this chapter does not provide a comprehensive overview of the respective data sampling strategies employed locally at each forest within a country.

As shown in Table 3.7, three subgroups have been identified within the group of countries who have conducted inter-area standardised approaches; countries with national site-specific studies, site-specific studies among several forests and regional site-specific studies.

National site specific studies:

Three countries have undertaken site-specific studies on a national level and with a standardised approach; Finland, the United Kingdom and Denmark (these countries have also undertaken additional on-site specific studies that did not follow a standardised methodology).

- In Finland, about 60 visitor surveys were conducted in mostly remote state-owned protected and hiking areas between 1998 and 2006. Automatic visitor counting devices (about 200) were used alongside on-site face-to-face interviews (Kajala et al. 2006).
- In Denmark, around 450 forests were surveyed in 1976/77 and around 600 recreation areas were surveyed in 1996/97. In these two studies nearly all state forests and many private forest

properties (as well as some other nature areas, such as beaches) were included in the data collection process. It is assumed that the more intensively used forests were overrepresented in the investigation (Kajala et al. 2006). For the 1996/97 survey, additional investigation sites were included, while the share of private owners participating in the study decreased. The methods used were year-round car counts by human observers and questionnaires at parking areas. The counts were carried out during twenty stratified randomly selected time periods of up to one hour, and in addition, during two subjectively selected 'peak' time periods. The stratification took the seasonal, weekly and daily variation into account. In addition, four permanent counting stations have been in use since 1976, recording all cars entering or leaving the four areas, which are accessible by only one road. Only the recreation use of car-borne visitors is included.

- In the UK, there are a number of site-specific visitor surveys: Prior to 2002, the Forestry Commission co-ordinated a National Programme of visitor surveys across Great Britain, focussing on larger sites, often with visitor centres. In 2002, a new visitor monitoring system was piloted aimed primarily at providing a more accurate estimate of the number of visits to woodland managed by the Forestry Commission, whilst continuing to gather information regarding the profile of visitors. Visitors are surveyed and counted at all types of woodland, rather than concentrating on the main sites. These 'All Forests' visitor monitoring surveys began operating in Wales and Scotland in 2004. Surveying using this method was carried out at around 40 forests in Wales in 2004 and at over 120 forests in Scotland between 2004 and 2007 (approximately a fifth of Forestry Commission owned forests in each country). The forests included in the survey were selected as a stratified representation of all of forests on the basis of the size of the surrounding population and perceived levels of visitor usage. At a combined level, the forests selected were representative of the range of facilities and activities available in Forestry Commission woodland. New methods of measuring the quality of visitor experience began in England in 2003 and in Wales in 2006, with seven sites selected and monitored annually (averaging 300 visitor interviews at each site). Local surveys to provide information on forest visitors are still carried out when required by forest district management (Table 3.9). These surveys address local management issues, with questionnaires designed to obtain information that vary from site to site, although many core questions are asked in the majority of surveys. Some surveys are targeted at specific events while others are more general.

Site-specific studies among several forests:

Countries that have conducted standardised surveys among some of their forest sites include:

- The Estonian State Forest Management Centre surveyed ten state-owned recreation sites in a standardised manner in 2002 and 2003; visitor and traffic counts were obtained by using automatic and mechanical counters, alongside on-site interviews (Kajala et al. 2006).

Table 3.9. Summary of local visitor monitoring forest surveys in Great Britain (2000-2006).

Year	Number of surveys	Min interviews	Max Interviews
2000	6	52	272
2001	8	63	193
2002	12	52	443
2003	7	56	430
2004	12	56	3838
2005	10	60	1582
2006	10	127	713

- Similarly, in the Czech Republic, standardised monitoring was undertaken across four highly forested national parks between 1997 and 2000 (Cihar et al. 2002); counting and interviews of visitors were carried out at pre-selected monitoring points.
- In the south west of France, five coastal forest sites were studied, and assumed representative of all coastal state-owned forests (around 45,000 ha); around 2,400 face to face interviews were carried out in 2002. In 2007, three sites were surveyed on the northern coast (20,000 ha), interviewing 775 on-site visitors. Additional on-site surveys have been carried out in France. Most of them have not followed a standardised approach.

Regional site specific studies:

Countries which have completed a majority of on-site studies at a regional level:

- In Norway six recreation and conservation areas in Nordland were monitored using automatic counters (trampling mats) at access points between 2003 and 2004 and continued for two to three seasons; questionnaires were not used (Kajala et al. 2006).
- In Austria, most studies on forest recreation have focussed on the urban regions of Vienna and Salzburg. Some of these studies have followed a standardised design, including a study of four forests (also nature conservation areas) in and around Vienna. Based on a combination of one-year round video recording data gathered daily at access points, and counts by human observers during sampling days, an estimate of the annual number of visits was calculated. In addition, during randomly selected sampling days, visitors were interviewed at access and intersection points of the forests. However, the four forests were not studied during the same year (Arnberger & Eder 2007, Arnberger 2006, Arnberger & Hinterberger 2003), thus limiting the validity of any inter-area comparisons. For one of these forests, a new survey is in progress, using the same methodology as a study completed around ten 10 years previously, thereby allowing valid comparisons across time regarding use intensities and user composition and patterns.
- In Belgium-Walloon 40 forests across the region were monitored by a university in co-operation with the forest service between 2005 and 2006, using a standardised questionnaire, interviewing over 4,000 people. Standardised visitor counts were not undertaken (Colson 2007).

Non-standardised monitoring approaches

Although site-specific studies may have been undertaken employing a variety of different methods, many countries have not yet used standardised approaches. There are therefore large variations in the methodology and quality of data, which often precludes valid inter-area comparison.

A range of factors may contribute to this lack of standardised approach, including differing types of owners and managers, or the diversity of forests in terms of their status, composition or management goals. Although most countries have conducted some form of on-site monitoring, some have more experience than others (for example, countries such as Germany and France have completed a large number of studies, while others, such as Croatia, have conducted few).

3.2.3 Overview of applied methods

Questionnaires

Methods used:

Several methods have been used to gather on-site visitor opinion on the recreation quality and provided infrastructure of European forests, and about, for instance, visitor motives, activities and landscape preferences (Table 3.10, Figures 3.3. and 3.4). In some countries, only one survey method is used (mostly face-to-face interviews), while in others, for example Austria, Denmark, Germany, Switzerland and UK, several survey methods are employed.

Table 3.10. Overview of methods used for questionnaires per country.

Country	On-site face-to-face questionnaire	Self-filled questionnaire (on-site self-registration boxes etc.)	Trip diary	Mail-back questionnaire of on-site forest visitors	Postal survey of local residents to forests	Face to face interviews with forest visitors at their home	Telephone interviews of local residents to forests	Questionnaire of forest managers
Austria	X	X			X		X	X
Belgium-Flanders	X							
Belgium-Walloon	X	X						
Croatia	X							
Cyprus	X							
Czech Republic	X	X						
Denmark	X		X*	X				
Estonia	X	X						
Finland	X			X				
France	X					X	X	
Germany	X			X	X			X
Greece	X			X				
Hungary								
Iceland								
Ireland	X				X			
Italy	X						X	X
Latvia								
Lithuania								
Norway	X	X						
Poland	X							
Slovakia		X				X		
Sweden	X	X		X				
Switzerland	X			X		X		
The Netherlands	X			X				
United Kingdom	X	X				X		
Sum countries	20	8	1	7	3	4	3	3

*Canoeers and kayakers

Among the eight methods identified, face-to-face interviews are the most common (20 of the 25 countries have used this method). Eight countries have used self-filled questionnaires and 7 mail-back questionnaires, while interviews with forest visitors at their home (either face to face or by telephone), and postal surveys of local residents are less common.

Some sources of information on forest recreation are derived from questions posed to managers of forest and protected area, or from local stakeholders, either via in-depth interviews, face-to-face-interviews or postal surveys. However, these surveys of managers and stakeholders are often relatively small and can be quite subjective. Good practice should require an effort to ensure respondents also provide details of the evidence that has helped form their opinions.

Sample sizes of on-site interviews:

The number of on-site visitors interviewed per study ranges from around 100 up to several thousand. Several studies covered a large number of forest sites, for example in Austria, Belgium-Walloon, Germany, Denmark, and the United Kingdom. Participants of the working group provided data on 115 on-site studies. On average (mean), about 560 people were interviewed per study. However, the median number of interviews per study is much lower (285), indicating that a number of the studies undertaken may suffer from a rather low sample size and therefore do not provide robust information representative on the recreation use of the respective forest. Some larger studies have addressed this issue by conducting a fairly low number of interviews in several forests but aggregating the data prior to analysis.

The mean quoted above includes some studies that covered several forest sites but not information about the sample size for each study site, and therefore the average sample size figure quoted above is likely to be an overestimate. A separate analysis regarding the sample sizes of national/regional site-specific studies and single on-site studies would provide more robust results.

Sample sizes of mail-back surveys:

Mail-back surveys involve giving on-site visitors a questionnaire and asking them to fill it out at home before sending it back; eight of the countries involved in this working group have completed this form of survey. Like some of the face-to-face surveys, some of the mail-back studies identified by this review have involved several forests simultaneously, thus limiting cross-border comparability of sample sizes. The sample sizes of the reported mail-back surveys range from 100 to 40,000, averaging around 4,400 (median 870). The highest sample sizes are from studies undertaken in Denmark; if the two large Danish studies are excluded, the average (mean) sample size for mail-back surveys drops to 1,100.

Response rates:

Only five countries (Austria, Denmark, Germany, Greece and United Kingdom) provided information about survey response rates and only from a limited number of studies. Thus, although many on-site studies have been carried out across Europe, information about response rates, a crucial indicator of validity, is rarely collected. The response rates of the reported on-site studies ranged from 49% to 100%; the median of 85% is illustrative of a surprisingly high response rate among the European studies.

Response rates to mail back-surveys ranged from 22% to 86% with a median of 53% representing a reasonable response rate for this methodological approach. Detailed information about the survey procedures used, for example whether reminders were issued (Dillman 1978), were not provided.

Visitor counting

The majority of nations that participated in this group have conducted visitor counting. Most employed several counting methods (Table 3.11), although most commonly, counts have been completed by human observers (in 18 of the 25 countries). In most countries, human observers count visitors to the forest, while in others, such as Cyprus and Slovakia (Svajda 2006), the vehicles and cars that forest visitors use are recorded.

Another common method of counting visitors is to use automatic counters (Figures 3.5 , 3.6 and 3.7), and unlike counts performed by human observers, these can allow for more long-term observation of recreation use. However, they cannot provide information about user characteristics, activities and user behaviour. Automatic counts may be collected from a number of sources, for example, pressure pads, passive and active infrared sensors, vibration sensors, radio transmitters or inductive loops.

Table 3.11. Overview of methods used for visitor counting per country.

Country	Manual counts of visitors	Automatic car traffic counters	Automatic people / bicycle counters	Tickets sold, permits	Parking lot counts	Mechanical counters	Summit/Guest books	Video monitoring	Air photography	GPS	Number of people in alpine huts
Austria	X	X	X		X		X	X	X	X	
Belgium–Flanders	X										
Belgium-Walloon	X		X								
Croatia											
Cyprus	X			X							
Czech Republic	X										
Denmark	X	X	X		X				X	X	
Estonia		X	X			X					
Finland	X		X	X		X	X				
France	X	X	X	X	X				X		
Germany	X		X	X	X		X	X	X	X?	
Greece	?			X							
Hungary											
Iceland											
Ireland											
Italy	X		X	X							X
Latvia				X?							
Lithuania	X			X							
Norway	X		X	X	X	X	X				
Poland	X			X							
Slovakia	X			X	X						
Sweden	X		X								
Switzerland	X		X								
The Netherlands	X	X	X							X	
United Kingdom	X	X	X								
Sum countries	18	6	13	11	6	3	4	2	4	4	1



Figure 3.3 a. and b. Visitor monitoring in UK. Face-to-face interviews with forest visitors are the most common visitor survey method used across European countries. (Photographs provided courtesy of the Forestry Commission)



Figure 3.4. a, b and c. Visitor monitoring in urban forest in Denmark. Several techniques to contact visitors are used. Here are examples of contacting by personal interview and by leaving a questionnaire with a car at parking site. (Photographs provided courtesy of Hans Skov-Petersen (3.4a, 3.4b) and Frank S. Jensen (3.4c))



Figure 3.5.a, b and c. Pressure pad counter installations on trails in Finland (a and b) and on a road in Denmark (c). (Photographs provided courtesy of Heikki Iisalo (3.5a and b) and Frank S. Jensen (3.5c))



Figure 3.6 a and b. Cameras are used for visitor monitoring in Austria and Germany; a video camera is hidden into a nesting box (a). (Photographs provided courtesy of Arne Arnberger)



Figure 3.7 a-d. Installation of electronic counter in a wilderness area in Finland. (Photographs provided courtesy of Rami Tuominiemi)

Automatic traffic counters such as inductive-loop detectors used in Denmark (Figure 3.5c) are applied in six countries, while bicycle and people counting devices, for example pressure pads, are in use in thirteen countries. The use of automatic counters is restricted to Central and Northern Europe including the UK. While some countries have used traffic counters for a number of years (Finland, UK and Denmark), others have started to use these devices more recently (Austria), and around half of the countries involved in this study have never used such devices for visitor monitoring.

Eleven of the countries have used permits and/or ticket sales data to count visitors, while six nations have used parking lot counting and four countries have examined registrations in summit books (predominantly registering mountaineers, for example in Austria and Germany) or guest books. However, ticket sales or permits do not always provide information on only forest usage. In Cyprus, for example, ticket sales to environmental visitor centres are recorded, while in Greece, ticket sales are used to count visitors to protected areas. In Lithuania, ferry tickets are used to calculate the number of visitors to a national park.

Mechanical counters, often installed in entrances to recreation facilities or in toilets, in gates or turnstiles are used in Estonia, Finland and Norway. Air photography and GPS are used by four and three countries respectively. In Denmark and Germany, for example, air photography has been used to count people at lakes or along the shoreline of the sea, while in Austria it has been used to count people on one alpine mountaintop. GPS is typically used to analyse the spatial use pattern of forest visitors or alpine hikers, but it does not provide information about the total number of visitors.

Austria and Germany also use year-round video monitoring to count visitors and to collect information on visitor structure, activity type and behaviours (such as off-leash dog walking) (Figure 3.6). In Austria, this method was used to monitor several urban and suburban forests, and protected areas, over the course of one year, daily from dawn to dusk. The studies in Germany, recorded visitors to a Bavarian national park (Hennig 2006) and to an urban forest in Stuttgart (Janowsky & Becker 2003).

Countries such as Austria, Germany, Finland, Denmark and Norway use several methods to monitor usage, while the methodological approach used in other countries is restricted to one or two count methods, often either by human observers and/or automatic devices. Because of the variety of methods employed, the different time periods each method is applied and the unavailability of data from existing on-site studies, standardised comparisons regarding usage levels across forests and across countries are beyond the scope of this summary. Tables 3.10 and 3.11 summarize the methods used by each country, but they do not indicate the frequency with which the method is used, i.e. whether all the methods are used for only one national survey or whether each study relies on only one specific method.

3.2.4 Information collected

The information most frequently collected in on-site studies, predominantly from questionnaire surveys, is data on socio-demographic characteristics, activity types, duration of stay, frequency of visit, means of transportation, and visitor preferences for recreational infrastructure (Table 3.12). Around three-quarters of the twenty countries that provided information on survey variables, collect such basic data and around two-thirds collect data on travel distance, travel time and social impacts, i.e. crowding and user conflicts.

Although visitor motivation and visitor satisfaction are key to understanding why people visit forests, how satisfied they are with their visit and with the recreational infrastructure, relatively few countries collect such data. Other data collected by over half of the countries examined in this review, include visitor preferences for forest structures or natural settings/landscape, spatial distribution and economic impact data such as expenditure and willingness to pay. It is also notable that there is little interest in health with respect to forest visits.

Table 3.12. Variables collected during on-site surveys

Variables collected in on-site surveys	Number of countries	% of all countries collecting this data
Socio-demographics of forest visitors	19	95 %
Visitor activities in the forest	17	85 %
Duration of stay	16	80 %
Frequency of visit	15	75 %
Access to forest/Means of transportation	15	75 %
Visitor preferences for recreational infrastructure	14	70 %
Travel distance/time	14	70 %
Social impacts-crowding/user conflicts	14	70 %
Visitor motivation	11	55 %
User satisfaction	11	55 %
Economy (WTP for forests, not national parks)	11	55 %
Spatial distribution on-site	10	50 %
Visitor preferences for forest structures/landscape	10	50 %
Ecological impacts	8	40 %
Time of visit	8	40 %
Expenditures/Regional economy	7	35 %
Health (in relation to forests visitors)	3	15 %
Countries total	20	100 %

The way many of the variables are defined varies among countries and studies, limiting their comparability. For example, the variable “frequency of visit”, a core variable reflecting actual forest use, can be measured by the average or total number of visits during the last month or year, or on categories such as daily, weekly etc. Similarly, the definitions of other variables, such as the duration of stay or access to the forest vary across the studies. The countries who have collected most of this data (at least 13 of the 15 variables detailed in Table 3.12) in their studies are Austria, Belgium-Walloon, Denmark, Finland, France, Germany, Switzerland, The Netherlands and the United Kingdom. Other countries have collected substantially lower quantities of data, although this is often in proportion to a lower number of on-site studies completed.

3.2.5 Summary

Although all European countries are covered to a certain extent with forests, the intensity of forest recreation monitoring activity varies considerably and moreover, a wide spectrum of methods are used among the countries. While many of the Northern European nations monitor recreation use in forests on a regular basis, fewer efforts exist in some of the Southern and Eastern European countries.

Standardised survey approaches (Table 3.13) have been used across Europe across a diverse range of forests (Table 3.14). Two countries, the United Kingdom and Denmark, have covered most of their forest types, including remote rural and (sub)urban forests, in order to gain a representative picture of national forest use. In state owned forests of Finland, visitor monitoring has been based on a continuous and standardised system. In Belgium, the forests of the Walloon region were monitored recently following a predefined design. In Austria, efforts focus on urban and suburban forests, investigating topics such as overuse, overcrowding and the importance of forests for daily recreation in the urban context. Standardised monitoring approaches have also been used to

Table 3.13. Summary of standardised on-site monitoring approaches

Forest types	Country example	Number of forests monitored	Main methods	Administrations/ Organisations completing monitoring
All types of woodland; state owned forests	UK	>100	Visitor counting & on-site interviews	Forestry Commission
Coastal forests; state owned forests	France	5+3	On-site interviews	State forest administration
All types of woodland; state-owned forests	Finland	60	Long-term visitor counting & on-site interviews	Metsähallitus (state forest administration)
National parks	Czech Republic	4		University
All types of woodland; state owned forests	Belgium-Walloon	40	On-site interviews	University & forest department
All types of woodland; state owned forests & private forests	Denmark	~ 600	(Long-term) visitor counting & on-site interviews	University & forest department, private owners
Remote recreational and protected areas	Norway	6	Long-term visitor counting	State forestry commission & county municipality
(Peri-)Urban forests; municipal/public forests	Austria	4	Visitor long-term counting and on-site interviews	University & urban forest department, national park administration
Recreation sites; state owned forests	Estonia	10	Visitor long-term counting and on-site interviews	State forest administration

Table 3.14. Specific country experiences with monitoring of recreation use across forest types

Forest type	Countries (examples)
Urban/suburban forests	Austria, Denmark, Finland, France, Germany, The Netherlands, Norway, Sweden, Switzerland
Remote forests	Finland*, UK
Coastal forests	France, The Netherlands
Alpine/mountainous forests	Germany, Italy, Sweden, Switzerland
Forests part of protected areas	Austria, Germany, Norway, Finland, Italy, Czech Republic

* state owned protected and recreation areas

investigate a number of coastal forests in France and some highly forested protected areas in the Czech Republic and Germany.

The majority of forests surveyed were state-owned or other public forests, while private forests were only included in the surveys in Denmark. In most cases, a combination of methods has been used, though most commonly, methods have involved on-site interviews and counts by human observers or by automatic devices.

In some countries, the main body of research relates to monitoring in remote forests, such as in Finland, whereas in other countries, such as Austria, urban or suburban forests are most frequently studied. In addition, geographical and topographical circumstances dictate that some countries

have experience with monitoring visitors in Alpine forests while others have experience of monitoring visitors in coastal forests. There is a rich European knowledge base on how to monitor visitors across a diverse range of forests, and thus greater pan-European knowledge exchange would assist those countries undertaking new forms of research.

Overall, European knowledge on monitoring forest recreation use appears to be greatest for urban and suburban forests, perhaps because there are concerns regarding heavy/over use of such sites. In addition, other contributory factors may be research documenting the need for urban green spaces, or that these forests provide a sound basis for recreational infrastructure planning and management.

A range of forest use studies have been undertaken in protected areas to assess the impacts of recreation use upon wildlife. Examples of such studies can be found in Austria, Czech Republic, France, Germany, Greece, Italy, Poland, Sweden and the UK. As such, protected areas are an important source of data on recreation use in forests; for some countries (for example Italy), recreation use studies in protected areas even seem to be the only source of information about on-site forest recreation use. Additionally, these monitoring studies often involve a high degree of effort, and comprise long-term visitor counting devices and combine the use of counting and interview data. These types of integrated monitoring approaches, undertaken in countries such as Austria, Germany, Sweden and Italy, can provide a sound evidence base for examining the conflicts between nature conservation and tourism/recreation.

The main methods used to gather information about forest use in Europe are on-site interviews and counting of visitors by human observation (Table 3.15). In addition, some countries, such as the United Kingdom and Denmark have used traffic counters, others, such as Finland, are experienced in monitoring visitors using infrared sensors or mechanical counters, while Austria is experienced in video monitoring.

In general, the more visitor monitoring is carried out by country, the more likely they are to use a range of methods, for example, Austria, Denmark, Finland, Germany, Norway, Sweden and the UK. This pattern may be influenced by university-led research (for example in Austria and Sweden), the trialling of new methods and devices, or strong and interested area/forest administrations such as those in Finland and the UK. Two driving forces exist in Denmark, an interested forest administration and an engaged scientific community.

Countries that employ a range of methods also often measure more variables and produce high quality data consisting of qualitative and quantitative long-term data on on-site recreation use. In general, while frequency of visit is usually measured, surprisingly, given the importance of such information, visitor motives and satisfaction were collected by only around half of the countries.

Table 3.15. Countries with rich experience in specific visitor counting methods

Visitor counting methods	Countries (examples)
Automatic counters (Infra-red, pressure pads etc.)	Austria, Denmark, Finland, Germany, Norway, Sweden, UK
Video monitoring	Austria, Germany
Traffic counters	Denmark, UK
Mechanical counters	Finland
Summit/Guest books	Austria, Germany
Air photography	Denmark, Germany

Due to the variety of visitor monitoring strategies employed, the different methods used and the range of variables measured, comparisons of visitor intensities, structures and profiles between countries are often not straightforward. In addition, the diverse set of different forest types among the European countries (urban, remote, alpine, coastal forests etc) can require specific monitoring strategies, further complicating any comparisons among on-site studies.

More commonality of methods would allow and ease comparability between recreation usage studies across European forests; this topic has been addressed during the 'Monitoring Outdoor Recreation in the Nordic and Baltic Countries' project between 2004 and 2006 (Kajala et al. 2006). The research, by Denmark, Estonia, Finland, Lithuania, Norway and Sweden, documents the high importance of visitor monitoring in these countries. The work was mainly financed by the Nordic Council of Ministers, however other agencies, such as the Swedish Environmental Protection Agency, also provided support. The purpose of the project was to develop visitor monitoring methods for Nordic and Baltic land management agencies to assist with work related to visitor management in protected and recreational areas.

The project group consisted of both researchers and managers, aiding co-operation, providing an important and efficient forum for information exchange and allowing for integrated development of methodology. By examination of case studies and other exchange of experiences, the project group discussed and identified common variables that could be standardised and used in visitor monitoring in all Nordic and Baltic countries. The group continued its research in 2006 and produced recommendations for common visitor monitoring methods in protected and recreational areas in the Nordic and Baltic Countries, which were published in 2007 as a Nordic-Baltic manual on visitor monitoring practices.

3.3 Recreation supply inventories

Hans Skov-Petersen and Martin Goossen

3.3.1 Introduction

Discussion of the feasibility of different monitoring techniques for recreational supply information requires a domain definition. In the present context, recreational supply is assessed as both the *actual sites in nature* and the *facilities found in nature* for the use – and benefit – of visitors. Available sites or resources can, for instance, be forests, and other open nature areas such as mountainous areas. Facilities refer to installations in nature, such as campsites, trails, picnic sites, boat services etc. Facilities are characterised by being managed and maintained by owners or managing organisations. Surveys of sites and facilities are performed for very different purposes and by very different means.

Standardised, cross-national monitoring of the supply of recreational resources and facilities is required for comparative studies of regions, and can help identify areas with specific problems that require special attention. In addition, especially attractive areas and areas where recreation has received special attention can be highlighted and described.

Three principal sources of information can be identified:

- Pan European GIS databases
- Questionnaire surveys involving national focal professionals
- Assessment of national web-based information systems

This section gives an overview of the available recreation supply information based on international GIS-databases. Additionally – based upon a questionnaire survey conducted amongst COST E33 participants – the availability of information on recreational facilities will be reviewed and discussed. Five cases of web-based information systems of recreational resources are described, from The Netherlands, the UK, Denmark, Germany, and Finland.

The COST E33 supply survey

The supply survey was conducted between September 2006 to October 2007, and 14 out of the 22 potential member countries of the COST Action E33 responded.

The questionnaire was in four parts:

- Areas of various types of land cover relevant to recreation.
- Extent and types of restrictions on accessibility to forests. Types of restriction include temporal (access prohibited at certain times of day or the year), restrictions related to certain activities (mountain biking, mushroom picking etc.), and restrictions to off-piste activities.
- Sources and information systems related to recreational facilities.
- National assessment of recreational facilities of a variety of types.

In all parts of the survey – as far as possible – a distinction was made between different types of ownership. For instance forest areas are split into private/public land.

The overall conclusion of the supply survey is that the questions posed and the issues involved in general were difficult to answer and handle in a comparable way. This, and the fact that relatively few responses were obtained, limit the degree to which solid comparable conclusions can be drawn. Thus, if a comprehensive monitoring scheme is to be established, the survey underlines the need for international standards, applied in a standardised manner across participating countries.

3.3.2 Methods to assess the supply of natural resources and accessibility for recreation

Natural sites

Natural resource – the site of recreational activities – are often monitored or mapped as part of generic, national, mapping surveys. Coarse classes such as forest, rock outcrop, meadow etc. frequently occur in such general, topographic maps. In present day mapping, data are collected and stored as separate, digital GIS-layers. Most often data are collected by means of airborne or ‘spaceborne’ surveying techniques. Accordingly, these types of maps only represent what is on the ground (land cover): only the actual land use, and not its type of ownership, or how accessible it is. This is a potential problem when applying topographic/land cover maps to assess recreational resources, because public access, and thereby the possibility to engage in recreational

activities, are often quite different depending on land ownership (for instance, public land is often more accessible than privately owned land).

The European Landscape Map, LANMAP2, is a pan-European landscape database at a scale of 1:2M (LANMAP2 2008). The European landscape classification covers the whole of Europe, from Iceland in the north-west to Azerbaijan in the south-east and from Gibraltar in the south-west to Nova Zembla in the north-east. LANMAP2 is a hierarchical classification with four levels (Climate, Altitude, Parent material, Land use/Land cover) and has 350 landscape types (Wascher 2005). Also, on a European scale, the CORINE land cover map (EEA 2007), which is based on satellite images, is a common source of geographic information on land cover (CORINE only covers the EU member states). Since CORINE applies minimum areas of 25 ha, derived data are expected to underestimate areas of land cover for classes that, for a given region, are scattered across the landscape.

A range of tabular sources of international land cover classes are available. These include the ministerial conference on the protection of forests in Europe, which is a high level political initiative (MCPFE 2007), and EarthTrends facilitated by World Resource Institute (2007) which is an environmental think tank supported by World Bank, UNEP, UNDP and other development organisations.

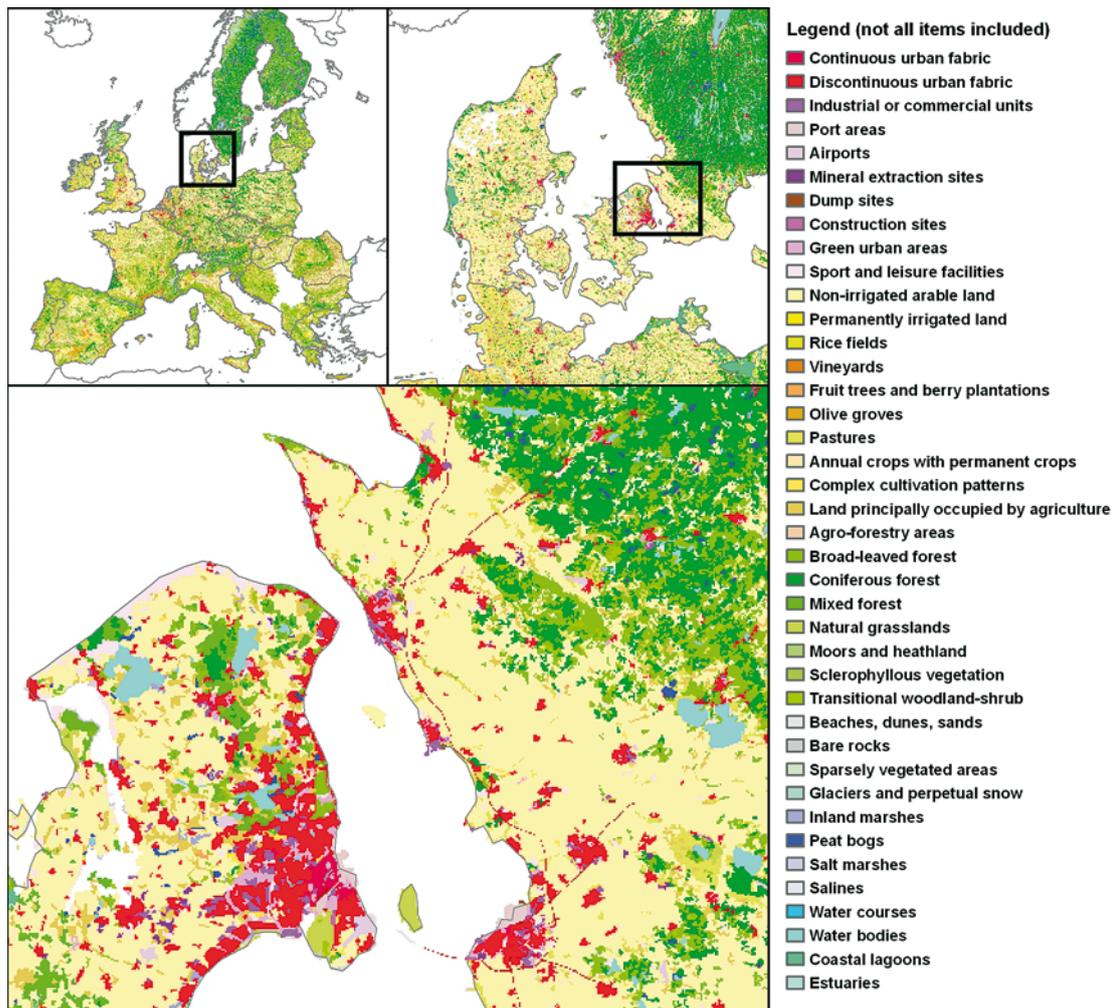


Figure 3.8. Details and overview maps from CORINE.

Table 3.16. Assessments of forest areas (in 1,000 Ha) in European countries from different sources. CORINE codes which applies to forest: 141, 311, 312 and 313.

	MCPFE	CORINE	World Resource Institute 1,000 Ha	COST E33
Austria	3,924	3,767	3,886	
Belgium	694	624	728	523
Bulgaria	3,903	4,229	3,690	
Czech Republic	2,631	2,740	2,632	
Denmark	579	457	455	486
Estonia	1,978	2,476	2,060	
Finland	22,882	24,147	21,935	
France	16,989	15,542	15,341	14,903
Germany	10,740	10,594	10,740	10,531
Greece	6,513	3,559	3,599	2,513
Hungary	1,873	1,960	1,840	
Ireland	441	633	659	698
Italy	10,842	8,857	10,003	
Latvia	1,678	3,241	2,923	
Liechtenstein	8	5	n/a	
Lithuania	2,119	2,083	1,994	
Luxembourg	88	93	n/a	
Netherlands	340	316	375	350
Poland	7,492	9,413	9,047	
Portugal	3,349	3,392	3,666	
Romania	6,680	7,593	6,448	
Slovakia	2,031	2,101	2,177	2,006
Slovenia	1,194	1,167	1,107	
Spain	0	13,746	14,370	
Sweden	30,259	29,546	27,134	
United Kingdom	1,072	2,174	2,794	2,829

MCPFE supplies via their homepage a wide range of relevant information including a generic overview of the sources of forest information (MCPFE 2003) and a list of the indicators applied in the MCPFE context (MCPFE 2002) (Figure 3.8). While the main focus is on general forest information, a few of the indicators are aimed at capturing recreation data. In addition, information related to ownership is included.

Table 3.16 details the forested areas of EU countries from four different sources. There is a general good correspondence between the figures from the different sources. However, it appears that the figures for Greece, Latvia and the UK are very low as per MCPFE compared to the other sources. Overall the responses from the COST E33 survey are acceptable.

Physical accessibility of forest resources

Here, accessibility is regarded in both legal and physical terms – legal accessibility refers to the public’s right to enter and use different nature types on one hand and the land owner’s and administrator’s right to restrict public access on the other. Restrictions can be both complete – where trespass is prohibited – and conditional – where certain activities are prohibited, or where activities are limited to certain times of the day or the year. Physical accessibility concerns the ability to make use of a potential recreational area. Physical access comprises elements of both remoteness

(how far away from its users it is) and local infrastructure (if bridges, entrance points, local feeder roads and paths, and so on are present).

Physical accessibility can be modeled by various GIS-techniques (provided of course that data are available). Legal accessibility can be much harder to assess, since information about ownership types frequently does not exist at a national scale. Even in countries where it does exist, the information is very detailed (e.g. in the form of cadastral maps) and therefore can be hard to handle on a nationwide scale. In some cases the ‘positive areas’ – where access is encouraged by managers (national parks etc.) – maps exist at manageable degrees of detail. It is often more difficult to obtain information (digital maps) on the legal accessibility of areas where public recreational access is not regarded a priority.

Physical accessibility can be defined as the amount of resource a given amount of transport effort will make available from a given location. Alternatively, accessibility can be seen from the facilities point of view, i.e. the number of visitors or users a given resource may receive with a given transport restriction. Strictly speaking the former is expressing the effect of the mobility of the users whereas the latter describes the object to which accessibility can be attributed. In general the term accessibility is used for both phenomena (Skov-Petersen 2002).

In principle, when assessing physical accessibility, three types of information are required:

- Location of the facilities (the forests)
- Location of the users (the population)
- The transport infrastructure, which, in comprehensive cases, is applied as a digital road network. In simpler cases, simple Euclidean distances are applied as proxy for the transport effort.

3.3.3 Inventories of the supply of man-made recreation resources

Collection and maintenance of information on recreation facilities can be motivated in two ways (which are often interwoven):

- Managers and managing organisations need *base registration of facilities* for activity reporting and general ‘stock keeping’ or facility management (FM).
- Managers and owners want to *inform users* about facilities and thereby highlight recreation opportunities.

Databases and registries that initially were constructed and maintained for the purpose of FM can become part of user information and marketing. This tendency has become apparent in the web-era of information dissemination; Data originally collected for FM purposes, may now be used as core information on organisations and parks’ homepages.

Types of data collected

In the COST E33 supply survey respondents were asked if – and to which extent – data on facilities were collected. Aggregated results are presented in Table 3.17.

How are data applied to national monitoring/Information systems

Table 3.18 presents the results from the COST E33 supply survey. Despite the activities dedicated to collecting data on recreational facilities, the survey indicates that in only a few cases are

Table 3.17. Types of information on recreation facilities collected by countries participating in COST E33 . Colors: Facilities for which information is collected. Dark = fully collected (all facilities included). Light grey = partly collected (some facilities – e.g. those situated in public areas – are included). White = not collected at all or data were missing in the response.

Facilities	Belgium	Cyprus	Denmark	Finland	Germany	Greece	Iceland	Norway	Switzerland	United Kingdom	Slovakia	France	Holland	Ireland
Recreation and visitor service centre	Light grey	Dark	Light grey	Light grey		Light grey	Light grey		Dark	Dark	Dark	Dark	Dark	
Camping sites	Light grey	Dark		Light grey			Light grey		Dark	Dark	Light grey	Dark	Dark	
Primitive camping/shelters			Dark	Light grey		Light grey	Light grey				Light grey	Dark	Light grey	
Picnic sites	Light grey								Light grey	Dark	Dark	Light grey	Light grey	
Marked footpaths and trails	Dark	Dark							Light grey	Dark	Dark	Light grey	Dark	
Boating sites	Dark						Light grey			Dark	Dark	Light grey	Light grey	
Services for hiking									Dark	Dark	Light grey	Light grey	Dark	
Skiing centers	Dark	Dark	Light grey			Light grey	Light grey		Dark	Dark	Dark	Dark	Dark	
Sites for swimming in natural waters	Dark		Light grey	Light grey							Light grey	Dark	Dark	
Sites for orienteering	Dark		Light grey	Light grey					Dark	Dark	Dark	Dark	Dark	
Sledging services									Dark		Light grey	Light grey		
Sites/centers for rock climbing/mountaineering	Dark			Light grey					Dark			Dark		
Golf courses				Light grey		Light grey	Light grey		Dark	Dark	Light grey	Dark	Dark	
Sites for nature studying (e.g. bird watch towers)		Dark	Dark	Light grey		Light grey	Light grey			Dark	Light grey	Light grey	Dark	

the data used for national statistical reporting. This may be an indication of a need for internal, national standardisation of indicators and methods for collecting information. Such a standardisation effort, if realised, would facilitate cross national assessments and comparative studies.

The information on recreational facilities appears to be more frequently used on public web sites, although in some cases it is also used for national statistics. Most of the sites are in national languages and thus seem to be aimed at national users rather than tourists from abroad.

Information on these web sites can often be obtained in a disaggregated form, with options to query individual entities or characteristics (visitor centers, trails, camping lots etc.), or as aggregate statistics such as the number and length of trails in regions, parks or other kinds of administrative units.

Table 3.18. What national inventories and databases of recreational facilities are used for. Colors: Dark = fully implemented. Light gray = Partly implemented. White = Not implemented at all or data missing.

Applied to	Belgium	Cyprus	Denmark	Finland	Germany	Greece	Iceland	Norway	Switzerland	United Kingdom	Slovakia	France	Holland	Ireland
National assessments/statistics		Light grey	Light grey							Dark	Dark		Light grey	
Web-based information service		Dark	Dark							Dark	Dark	Dark	Dark	

3.3.4 National information systems on recreational facilities

The Netherlands

In the Netherlands the supply of recreational facilities and areas is collected with the information system BORIS of the Stichting Recreatie (www.borisweb.nl) for the Ministry of Agriculture, Nature and Food Quality. BORIS is the most complete Geographical Information System (GIS) for recreation of the Netherlands. The system shows the geographical locations of areas (such as forest), points (such as camping sites) and lines (such as cycle tracks). Most of the entities contain additional information, such as the amount of beds in hotels or water quality of swimming locations. The system is based on a number of categories and several subcategories. The following categories are distinguished: infrastructure, administrative units, land use, areas of specific policy issues, supply of water recreation, land supply recreation, mobile recreation, overnight stay accommodations, and reference area.

The Stichting Recreatie does not collect the data itself. The data are delivered by (recreation) organisations. That is one of the reasons why the data are not regularly updated and are sometimes not complete. Although BORIS includes a large amount of data on recreation supply, it does not represent all recreational facilities. To inform the user about data quality, all (sub)categories are supplemented by (meta) data on accuracy, reliability and completeness, according to the European directive for metadata CEN/TC 287 008.

Besides Stichting Recreatie there are other organizations who own geographical recreation data. The LGN (Landelijk Grondgebruik Nederland/Rural Land use Netherlands) database is a raster database with 25*25m resolution, covering the entire Dutch territory and presents the land use in 39 classes. Since 1986 the database been updated every 3-5 years. It is based on a combination of geodata and satellite images. The LGN database is a product of the Centre for Geo-Information which is part of the Wageningen University and Research Centre. Alterra (www.alterra.wur.nl) have geographical data on the quality of areas for recreation, such as the openness of areas, the amount of noise, biodiversity, the number of cyclists in areas and cultural and historical information (www.kich.nl).

Information can be used in an aggregated form. Figure 3.9 shows the quality of cycling recreation opportunities in a province of the Netherlands. Quality is measured using data on land use, number of cycle routes, accessibility of nature area, the amount of noise, the level of relief, the amount of water and the number of attractions.

Another example is the website application www.myplacetobe.eu, where visitors can discover the landscape of their preference, using a range of Dutch geographical data. The Dutch State Forest and NGO's who own a large amount of nature and forest areas all have their own web sites where information on recreational supply can be found.

The UK

The Forestry Commission (GB) national web-based system provides a range of information on recreation sites, including information on places-to-go, walking, cycling, and horse riding trails. Sites are located both on regional overview and local maps. Detailed information about the individual sites is also available along with information about the accessibility of the areas (in terms of, for example, accessibility for physically disabled or elderly people). In addition, information

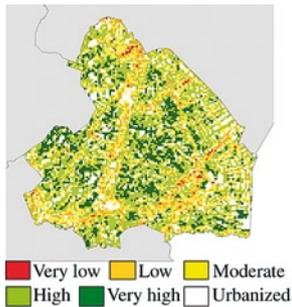


Figure 3.9. Quality for cycling in the Netherlands.

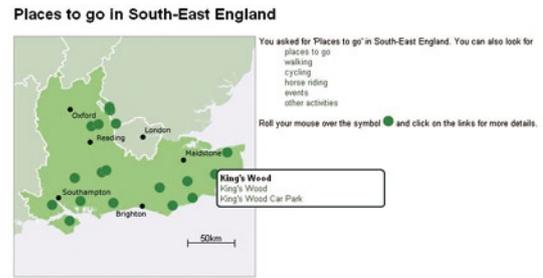


Figure 3.10. Example of UK's Forest Commission's homepage (<http://www.forestry.gov.uk/Website/ourwoods.nsf/mapform?OpenForm®=ESE>).

about actual events related to nature recreation is also provided. Figure 3.10 shows an example of a regional overview map of sites in South England.

The Woodland Trust online (www.woodland-trust.org.uk/) directory provides access information on over 1,000 woods and woodland groups, in the Trust's care, covering approximately 19,000 hectares. The information is kept automatically up to date, highlighting all new woods acquired.

Woods can be found through the search engine on the website by name, location, nearest town and size; advanced searches can also be used to find woods by designations or wood attributes. Once located, an interactive map can also be used to provide a virtual visit of the woods. Detailed site descriptions are given about the history, past management, aspect, neighbouring land and access provision.

Detailed descriptions are given about the Trusts long term management intentions for each woodland as well as a detailed management plan that can be downloaded by anyone interested. There is also a picture gallery containing over 25,00 woodland and nature images and a section is dedicated to promoting what the Woodland Trust is doing in each area: guided walks, talks, tree planting events and fundraising activities.

Denmark

The Danish 'Open air map' (www.friluftskortet.dk) is a database of recreational facilities, routes and tracks, and areas of specific interest to recreation. The database has a web-based front end



Figure 3.11. The Woodland Trust online (www.woodland-trust.org.uk/).

that is accessible by the public. Data are entered voluntarily by landowners and administrators, including municipalities and regional authorities, state organisations and private landowners. Due to its voluntary basis the ‘open air map’ is not complete, although it is expected that, over time, more and more information will be added. The database includes information on marked trails, activity areas, facilities, angling sites, overnight shelters and amenities (see Table 3.19).

The database can be searched in various ways and information, including maps, can be produced. An example of such a map is shown in Figure 3.12. The web site for the ‘Open air map’ also provides information on the accessibility and legal rights (and responsibilities) in Danish nature.

Germany

A Pan European website with information on the natural and cultural characteristics of nature parks has been established (www.naturparke.de in German or www.european-parks.org in English). It shows what each nature park has to offer in terms of natural and cultural assets, as well as visitor facilities. To review current recreational opportunities in German parks, a complete web-search was conducted in 2007. Qualitative data were collected and categorized by analysis of the content of the sites.

Activities: Hiking (86 parks) and biking (84 parks) are designated in almost all nature parks explicitly as a recreational and leisure-time activity, and horse riding is offered in 65 parks. Swim-

Table 3.19. Number of entries of the Danish ‘Open air map’.

Facility-/area type	Number of entries in the data base (15/1 2008)
Walking trails	534
By cycle routes	114
Horse riding trails	48
Routes on the water	19
Beaches	152
Fresh water swimming sites	54
Bird watching localities	116
‘Dog forests’	153
Sites for snorkeling	17
Sites for open air fire	372
Nature playgrounds	69
Bird watchtowers	127
Nature exhibitions	51
Nature schools	116
Parking lots	788
Free angling sites	168
Angling sites with entry fee	31
Site with walking route leaflets	266
Sites with mountain bike route leaflets	10
Sites with horse riding route leaflets	14
Sites with water route leaflets	25
Camp sites	156
Over night shelters	874
Free camp sites	49
Sites of cultural heritage	325
Protected sites	7
Geological localities	54
Famous trees	83
Big rocks	132

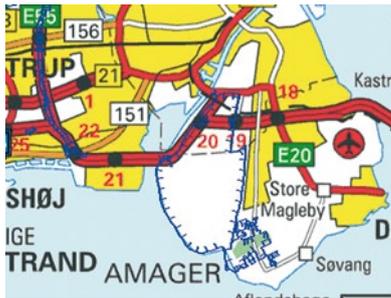


Figure 3.12. Examples of GIS based map of information (bicycle lanes) extracted from the Danish nature facility database (www.friluftskortet.dk).

ming, canoeing, sailing and fishing are also available in many parks. These four kinds of outdoor sport, which are represented by a number of associations, make up the largest proportion of water sports in Germany (yearbook of the statistic federal office 2006).

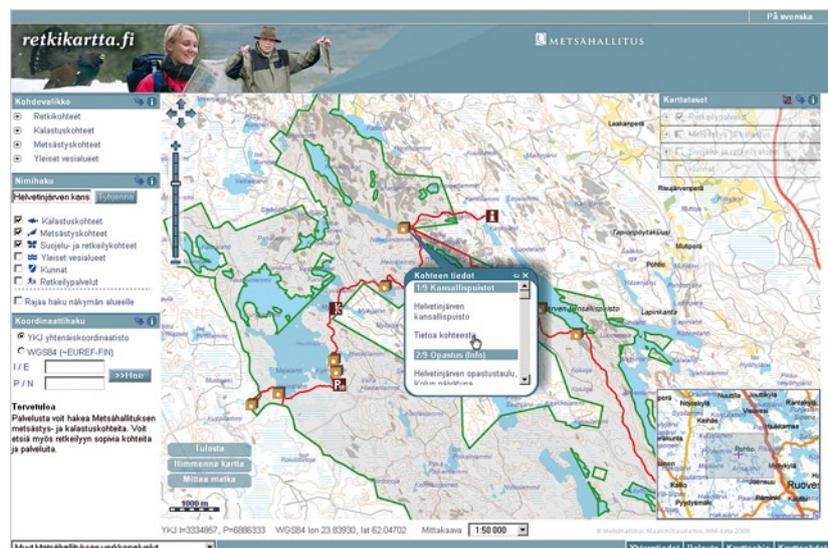
Environmental Education: Broad opportunities exist for environmental education and there are a range of different services and infrastructures. The nature trails and nature educational trails (62 parks) are most widespread, followed by various environmental education programs for children (57 parks).

Touring and recreational offers for disabled people: A total of 74 parks offer tours and only 17 parks do not. Nature experience, cultural history and environmental education are thematically highlighted. Hiking and biking are mainly offered as touring activities. In addition, there are often opportunities to participate in sport and carriage and ship cruises. 22 Parks particularly emphasize family-suitable touring. Recreational offers for disabled people are however still the exception.

Finland

Metsähallitus, the state-owned organisation that manages public lands and waters in Finland, launched a new geographic information system (GIS), named Reiska, in 2004. The Reiska GIS includes data on all buildings and other man-made structures and routes managed by Metsähallitus, and is widely used to facilitate their management. The data include administrative data, technical details (and other data used to classify such features), photographs (and other additional

Figure 3.13. Example from the Reiska geographic information system.



materials), and data on the locations of features, which may be denoted as specific points, lines or polygons.

The Reiska GIS, and the data derived from it, are used for the following purposes: up-to-date monitoring and reporting on the amount and quality of buildings, structures and routes, maintenance of buildings, structures and routes, planning and monitoring of maintenance work, planning construction work, planning the use and management of specific areas such as national parks and hiking areas, producing maps, leaflets and brochures, producing signs for guiding visitors, serving individual clients, protecting architectural and cultural heritage and for planning forestry work

The Reiska GIS greatly facilitates the planning, use and maintenance of all such buildings, structures and routes. It is also a valuable resource for many aspects of customer service. Responsibility for the data within the Reiska GIS is shared amongst the people who actually build, run and maintain the respective features in practice in the field. This ensures that the data is as accurate and up-to-date as possible. Any of Reiska's users can easily view data and obtain information for reporting purposes directly from the system, meaning that there is no need for separate reporting applications. Users can easily produce a variety of maps, direct from the system, at whichever scale they require.

The spatial data produced by Reiska is also available from various internet, mobile location and cartographic applications designed for public use, including a new internet map service launched by Metsähallitus in 2007 (see www.excursionmap.fi). This new service enables people visiting national parks, nature reserves, hiking areas or Lapland's wilderness areas to locate cabins, shelters, campfire sites, hiking routes and other useful facilities. Users can also print out personalised maps to help them find the way to their chosen destinations. Hunters and anglers can also benefit from maps that clearly show the boundaries of areas or water covered by specific hunting and fishing permits.

3.3.5 Summary

In this chapter, three principal sources of information on recreation supply have been examined: *Pan European GIS databases*, *questionnaire surveys* returned by national professionals, and *national web-based information systems*. Each of the sources has its strengths and potential fields of application, its weaknesses and problems, and its possible directions for future development.

Pan European GIS databases are a good, standardised source of cross-national area information, although often the geographical extent and detailed scale (both spatially and thematically) are counteracting forces. In the CORINE dataset, the thematic data provided (the attributes of the spatial units) are limited to land cover classes, which are given in quite coarse classes that in many cases vary semantically between countries. Information regarding ownership and legal aspects is not included, which immediately limits use. This serves as an important recommendation for the EU's INSPIRE project. The INSPIRE Community Geoportal is Europe's Internet access point to a collection of geographic data and services, within the framework of the infrastructure for Spatial Information in Europe (INSPIRE) Directive (<http://www.inspire-geoportal.eu>). INSPIRE aims to make available relevant, harmonised and high quality geographic information to support formulation, implementation, monitoring and evaluation of policies and activities which have a direct or indirect impact on the environment. Cross-national monitoring and comparison of recreational

area resources would be improved if the INSPIRE project included more spatial and thematic information relevant to recreation

Using GIS data as a base for monitoring allows the full suite of spatial analytical options to be considered. This includes examination of physical accessibility, overlaid with other geographic information (e.g. watersheds, populated areas etc.), and aggregation over different spatial units (e.g. administrative boundaries, ecological zones etc.).

Questionnaire surveys of nation wide recreation supply involving national staff enabled standardised collection of information despite the heterogeneity of the background data in different countries. A major constraint in general - and demonstrated in the context of the present project - is the difficulties in identifying individuals or organisations with the comprehensive knowledge required. This is more of an issue in larger countries, where organisations are divided into sub-domains and/or regional authorities. Future monitoring endeavors would require a commitment from countries' central legal organisations to co-ordinate the data collection from relevant public or private organisations. Alternatively, or in addition, international organisations like the MCPFE could be approached to include more relevant recreational issues in future assessments, although it is likely that during such activities, MCPFE may face the same organisational problems encountered whilst conducting this analysis.

National *web-based information systems* are motivated by very different needs - some were originally designed for facility management, others to support commercial tourism, and they are maintained by a variety of different organisations. Another issue is that most of such web-based information systems do not provide comprehensive coverage of recreation supply information for entire countries. Information on recreation services may only cover some nature areas (e.g. national parks or state owed areas) or the information relates to only a limited number of recreational activities. To make better use on an international scale, information from the web-based information systems should be collected and validated by experts with national insight (of the individual countries or regions) according to a standardised questionnaire.

Chapter 4. The contribution of recreation inventories to policy and management

Tuija Sievänen, Jørund Aasetre, Anne-Marie Granet, Neil Grant and Frank S. Jensen

4.1 Impact of forest recreation monitoring surveys on policy and legislation in Denmark

Before the 1970s there was no scientific evidence of the recreational importance of forests in Denmark. The first national surveys conducted in 1976-1978 were followed by surveys in 1993-1997. These surveys provided data on visits, visitor behaviour and forest preferences on a national and local level (Jensen, 1999, 2003; Koch, 1978, 1980). The third nation wide forest recreation inventory is planned for 2008.

Over the last three decades a range of forestry-related policy issues have come to the fore; for example via the Forest Act, the National Forest Program, the National Afforestation Policy, and the evaluation of public access regulations. The results of forest recreation research and monitoring have been influential regarding the social component of some of these issues and have provided a background for a more informed discussion.

The first surveys by Koch (1978, 1980, and 1984) had a relatively important influence on the debate around updating the Forest Act in 1989. The Danish Forest Act was initially formulated in 1805 and was thoroughly updated in 1989 (the first time since 1935). For the first time, outdoor recreation was mentioned: 1.-(2) "In administration of the Act importance shall be attached to ensuring that forests are managed in order to increase and improve wood production and to protect landscape amenity, nature conservation, cultural heritage and environmental protection interests, as well as recreational activity interests." In particular, in publicly owned forests (which constituted 28 % of the total Danish forest cover of 486.000 ha in 2000), recreational interests shall be given priority: "2-(1) In publicly owned forests, landscape amenity, nature conservation, cultural heritage and environmental-protection interests, as well as recreational activities shall be given special emphasis."

As mentioned above, outdoor recreation research/monitoring has exerted influence on the evolving aims of the Forest Act (and thereby on forest management in general). In addition, the implementation and priorities of the Danish afforestation programme has been affected by the research/monitoring - where the relationship between the distance to the nearest forest and the number of forest visits has been influential (Jensen & Koch, 2004). Furthermore, data on the public awareness of the rules for public access have had an influence on the outcome of the work of the national ministerial committee evaluating existing legislation on access to Danish nature areas. Finally, data on use level and user profile have also played a role at a local level when plan-

ning and managing specific forest/nature areas - as well as forming part of the basis for budget allocations to the individual state forest/forest district.

An example of a document where the interest of forest research (including outdoor recreation) is explicitly specified is the “Danish National Forest Program”, where numerous references are made to the importance of outdoor recreation. The following excerpt exemplifies the special emphasis on monitoring/statistics/research in the National Forest Program: “ The linkage between forest research and forest policy processes is seen as particularly important for a sound development of the forest sector... This will be put into practice through for instance: following and documenting the conditions and development trends in the forests... In the coming years, forest related research will in particular be concentrated on: 1) environmental economics and environmental sociology, and 2) environment and health, including outdoor recreation” (Danish Forest and Nature Agency 2002).

4.2 Impacts of forest recreation monitoring surveys on policy and legislation in Finland

In Finland, the first national survey of outdoor recreation was conducted in 1979 (Ulkoilututkimus 1979, 1980), but it was rather limited in terms of topics covered, and did not have much of impact on policy and management. The second survey in 1991 (Sievänen 1995) focused on participation in outdoor activities, particularly cross-country skiing, walking and hiking and bicycling. The National Outdoor Recreation Inventory (LVVI) was conducted by the Finnish Forest Research Institute and Statistics Finland in 1998-2000. The first Outdoor Recreation Statistics (Pouta & Sievänen 2001, Sievänen et al. 2002.) were produced at a national level in 2001, and for 15 regions in 2002. The second round of nation wide recreation demand inventory is planned for 2008-2010.

The Programme for Developing Recreation in the Wild and Nature Tourism (2003) is a high level governmental political document, which used Outdoor Recreation Statistics as it's most important information base. This is the first programme, which takes a broad look at problem issues in the field of outdoor recreation and nature tourism, and suggests 30 different actions for outdoor recreation and nature tourism development for the period 2003-2010. One action, which recommends major renewal and development of legislation concerning outdoor recreation, commenced in the Ministry of Environment in 2007. Another policy document, the programme for developing recreation and nature tourism on state-owned lands (Patosaaari et al. 1996) also used the results of earlier recreation research extensively. The information generated by the earlier studies was also used for handbooks of planning and management of trails and recreation areas (Karjalainen & Verhe 1995, Pouta & Heikkilä 1995). Regional planning processes for nature tourism and regional land use planning have used regional recreation statistics (f.ex. Karimäki 2004).

The Ministry of Agriculture and Forestry prepared Finland's Forest Sector Future Review in 2006 (Kokkonen & Hytönen 2007), using several reports from the forest research community. In that work, outdoor recreation statistics offered an information base upon which to evaluate the development of forest recreation demand. Finland's National Forest Programme 2010 (KMO) has been revised and extended to 2015 (KMO 2015). Part of the work includes a review of indicators and measurements on how to monitor socially sustainable forest use. The nation wide recreation

inventory study (LVVI) will provide evidence for this monitoring (Suomen metsät 2007, Huhtala et al. 2007).

Nation wide recreation data from the LVVI study has been widely used on different policy and planning processes within Metsähallitus (Forest and Park Service.) Examples of these actions are the assessment of the management of protected areas (Heinonen 2007) and development of a web-based information database, Outdoors.fi (Hopponen & Leivo 2007). Metsähallitus, which is the main agency to manage state-owned lands, has been monitoring recreational use in protected and recreational areas from the beginning of 1990's (Erkkonen & Sievänen 2002). Visitor monitoring information is widely used for planning and management of recreation services and natural resources (Heinonen 2007). Visitor information is needed when considering the integration of different forest functions and allocations of resources. The pressure of commercial nature tourism on protected areas has demanded many managerial decisions, which have been supported by visitor information. Several regional development plans for nature tourism and recreation have benefited from regional outdoor recreation statistics. On a national level, the visitor information has reinforced the importance of protected and recreational areas for the public. The visitor information has had an important role on a political level when considering the financing of recreation services and allocation of land resources for protection, recreation and nature tourism.

4.3 Impacts of Forest recreation monitoring surveys on policy and legislation in France - Focus on state-owned forests

France has a history of forest recreation inventories going back 40 years. The importance of recreation monitoring surveys is connected with the involvement of different actors in recreation policy making. Inventories and surveys, either on the demand for, or supply of, forest recreation are tools used at a variety of levels to increase knowledge, to guide the policy and to convince other actors of the need to maintain a strong involvement in (and funding for) forest recreation issues.

4.3.1 Forest recreation, a new mission for public forests, a strong government involvement

In the 1960s and early 70s, growing urbanisation led to an increase in the use of forests for leisure and recreation, especially in state-owned forests close to towns. The Ministry of Agriculture, responsible for forest policy, needed to source knowledge about this new demand, transforming the background of traditional forestry.

The first important survey dealing with forest recreation (SARES 1968) was carried out across the whole Paris region (225 000ha of forests), where forest recreation demand was concentrated. This survey was performed just after the creation of the ONF (French Forestry Office), a public body in charge of the planning and management of public-owned forests (1966). In the early 1970s, several other important scientific surveys, at the national level (Baillon 1973) and at the regional or local level, mainly in urban or peri-urban forests (such as Fontainebleau forest) were undertaken with government funding. The purpose was, first to obtain quantitative knowledge of a new phenomenon, but also to understand the factors determining public behaviour and the main characteristics of forest recreation.

As a forest owner (more than 1,5 M ha are state-owned forests), and with responsibility for forest policy, the Ministry of Agriculture used the general results of these surveys to define the policy for forest recreation and to produce guidelines for public forests. The ONF, supported with government funding, was in charge implementing in public forests, actions determined by the survey results. A great quantity of equipment and facilities, mainly connected to access (forest roads, car parks, and picnic or playground areas) was installed, often using the model of urban green squares.

4.3.2 The need for new partnerships with communities and local bodies for recreation development

In the late 1970s and 1980s, the emergence of environmental concerns in society led to the ecological role of forests increasing in importance when compared to recreation use. Recreation surveys are no longer an important issue, even if the recreation use of the forests is growing, and is exceeding the carrying capacity in some places.

The new guidelines of the Ministry of Agriculture (1979) focussing on forest protection, promote walking as the most suitable activity for forest recreation and emphasise as natural as possible management for recreation areas. They also highlight the need to involve local communities when planning recreation facilities. An ONF supply-oriented inventory of areas and facilities was needed to assess the work done to improve forest recreation in state-owned forests at the national level, and to convince the government of the need for funding for maintenance (Supply survey in state-owned forests; ONF 1986). It was not directly successful amidst a background of evolving decentralisation, as the government disengaged from such operations, undertaken for the benefit of local communities. But two decades later, some of the figures from this survey were still used for communications regarding forest recreation at the national level.

The local administrative bodies and the municipalities now need to get involved in forest recreation supply implementation in state-owned forests. A few of them, in urban or tourist regions (Aquitaine coast, Paris region, Normandy...), according to their own needs, carry out local or regional recreation surveys to adapt their policy, to make new plans for forest recreation and to communicate messages (e.g. on the need to acquire forest lands, to provide easier access or new recreation facilities. Local monitoring surveys are also used as tools to assess the need for access regulations, especially in fire sensitive areas or for habitat or species protection.

Nevertheless, amidst this background where more responsibility was given to those involved at the local level, the Ministry of Agriculture implemented a national survey (BVA 1991), before producing new general guidelines for urban forest management. The document, based on updated data on the forest recreation demand of people living in cities (>100 000 habitants) is more robust.

4.3.3 Monitoring social demand for forests, a tool to answer new regular requirements and to adapt forest management to a changing environment?

Both at the national and at the local level, the administrative bodies recognise the importance of recreation monitoring surveys to support recreation policy. However, over the past few decades,

the implementation of inventories has been mainly related to current needs without any emphasis on long term policy.

The new contracts with the government (2001-2006 and 2007-2011) give the ONF the obligation to produce an assessment of state-owned forests every five years. This assessment includes indicators on the different criteria of sustainable forest management, including forest recreation. The first assessment was published in 2006 (*Bilan patrimonial des forêts domaniales*; ONF 2006) and included recreation indicators on the supply and forest surface available per habitant.

The lack of precise and updated data about forest demand led the ONF to carry out a new national survey (*Forêt et société*, ONF/ Université de Caen 2004). After an exploratory research stage, it is expected that an “Observatory” will be launched, a social demand monitoring system for forests (wider than recreation). The purpose of this monitoring system should be both to update at regular intervals the assessment (and to answer other national or international requirements connected to recreation) and to adapt the forest management of public forests (including recreation) to the evolving needs of the society in a changing environment.

4.4 Impacts of forest recreation monitoring surveys on policy and legislation in Norway

The first national survey on participation in outdoor recreation in Norway was conducted in 1970. In the period since 1970 there have been 13 national surveys on this subject, and several other more local studies on outdoor recreation in general and on forest recreation specifically. With exception of the USA, this may be quite unique internationally (Odden in prep.; Cordell 2004). The studies have not been conducted on a regular basis. As shown in Figure 4.1, two surveys were conducted in the first half of the 1970’s followed by another two studies over the next ten years. Then in the latter part of the 1980’s three studies were undertaken, and since then two surveys have been conducted in five year interval.

The first studies were conducted at the same time as the Norwegian environmental management body was established. The Norwegian ministry of environment was established in 1972, and the new environmental body needed to build a knowledge platform for its actions and management approaches, and thus a broad overview on environment issues, including outdoor recreation, was required. The development of this environmental body established the “*Administration for outdoor recreation and nature conservation*” in 1965 as a section within the ministry of “Municipalities and work”. This period coincided with the time that environmental awareness really started in Norway. The first national survey was conducted the same year as the well-known (in Norway) Mardøla action when environmentalists protested against hydroelectric development destroying the famous Mardøla waterfall. This followed the European Nature Conservation year of 1970.

The use of national surveys on outdoor recreation in policy formation must be related to the type of information provided by the surveys. Those surveys to a large extent are recreation activity oriented. They give information on the type of activity, rate of activity, the social setting of the activity and, in some surveys, motivation for activity. The type of environment such as forest or other environments can only be identified via the activity list as “hiking –” or “skiing in” forest. Those first studies documented the importance of outdoor recreation for Norwegians, and through this showed that outdoor recreation is a very important leisure activity that has to be

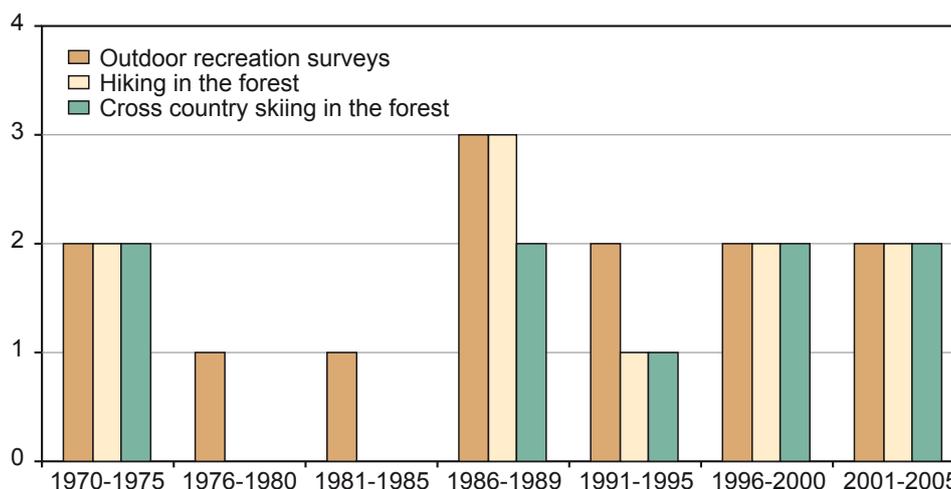


Figure.4.1. The number of national recreation surveys with recognition of forest related outdoor activities.

taken seriously in planning and nature management. The importance of outdoor recreation in Norway based on the national surveys can be somewhat modified in light of the often uncritical use of the frequency of trips. For example the statement that ‘97 % of the Norwegian population is participating in outdoor recreation’ is used as an argument, but the criteria of belonging to this group, is in fact, participating *at least once during the last year*. Jensen (2003) is, among authors to have highlighted the ‘over-representation factor’ in such surveys, speculating that perhaps there is a tendency to report outdoor recreation visits because it something ‘you should have done’. The results from the surveys are used in several reports (Faye & Herigstad 1984, Dølvik et al. 1987, Teigland 1989, Vaagbø 1992, Kaltenborn 1993, Aasetre et al. 1994, Vaage 2002).

In the white paper on outdoor recreation from 1986/87 numerous statistics from national surveys were used in the argumentation (St. meld. nr. 40 (1986-87)). Also in the last white paper, the arguments are partly based on national surveys (St. meld. nr. 39 (2000-2001)). Both white papers argue for supporting the “traditional Norwegian friluftsliv tradition”, friluftsliv as the Norwegian label on outdoor recreation. This tradition implies a ‘simple and traditional way of practicing outdoor recreation’. This means no-commercial and no-competition oriented activities. The results from the national surveys provide evidence for policies that support this tradition. In the last white paper, survey results are discussed in relation to possible changes and threats to this (valued) tradition.

The first white paper on outdoor recreation was published in 1987, and as shown in Figure 4.1, the number of surveys on outdoor recreation was at its highest in the second half of the 1980s. This is probably because of the need to support the arguments presented in those white papers, the establishment of the Directorate for nature management in 1987, and in general as a result of the relatively strong focus on outdoor recreation during that period. This focus also generated a four-year research programme run by a special research unit in the Norwegian Institute for Nature Research, as well as the arrangement of the year of the “friluftsliv” (etc. outdoor recreation) in 1993 (such a year of the “friluftsliv” was also arranged in 2005).

Statistics from national surveys detail the main trends in the outdoor recreation activity pattern. As most Norwegians live in urban areas (78%), and 45 % live in the cities with more than 20,000 inhabitants (SSB 2006), close-to-home urban recreation areas are important. Because short trips in close-to-home areas make up the largest proportion of outdoor recreation visits, the areas around

cities are the most used recreational areas in the country. A large proportion of towns in Norway are surrounded by forests. In the previous forestry act §17b specified the opportunity to provide special regulations on forestry in specific areas, however, to date this has only been done for “Oslomarka” and another smaller area in Østfold county. The Oslomarka is probably the forested area most used for recreation in Norway. The §17b is continued in §13 within the new “forestry act” 01.01.2006. A special law for protection of «Oslomarka» is also under preparation.

Several public documents relating to forest policy and passing a new forestry act place considerably weight on outdoor recreation. But even if those documents use the phrase «friluftsliv» (outdoor recreation), they don’t give much reference to specific surveys on outdoor recreation and often the discussions are more related to broader policy goals. Among issues given specific attention are the importance of recreation in forests near urban areas, and more general multiple use issues are also given attention. Those documents are St. meld. nr. 17. (1998-99), NOU 1989:10 and Ot.prp. nr. 28 (2004-2005). In that regard, the national surveys are probably influencing the policy documents through the general public debate together with other types of research and statements from different stakeholders.

In Norway the Directorate for nature management (2003) has printed a handbook for planning in «Marka» (near urban recreational) areas. It is suggested that this type of planning finds a legal base within the building and planning act as part of ordinary planning processes in the municipalities and thus so called «Marka» plans are sub-plans within ordinary municipality plans. In addition, the forest industry has used research on outdoor recreation in policy making. In the «Living forest» process, research on outdoor recreation, both national surveys and more specific surveys (as Aasetre 1994) were used to develop standards for forestry certification (Levende skog 1998).

4.5 Impacts of recreation monitoring in the UK¹

4.5.1 Introduction

The Forestry Commission (FC) is the government department responsible for forestry policies in GB and has a mission to protect and expand Britain’s forests and woodlands and to increase their value to society and the environment. Some of the impacts of GB’s rich history of monitoring woodlands at both national and more localised levels, and for a variety of purposes, are outlined in the following sections.

4.5.2 Impacts of recreation monitoring - national level examples

Government forestry policy

In the 1980’s and early 1990’s, the UK Government pursued a wide ranging policy advocating the privatisation of national assets and in the course of the 1994 Forestry Review, the Government examined a full range of options for the future of the national forest estate. The importance

¹ Many thanks to all those who contributed information for this paper: *Graham Neville (Scottish Natural Heritage); Suzanne Martin (Forest Research); Ben Oliver, Kellie Lovet, Karl Bartlett, Paddy Harrop, Malcolm Wield, Fiona Murray, Jenna Coull (Forestry Commission)*

that the public places on access to woodlands was reflected in the many representations made to the 1994 Forestry Review Group about access to Forestry Commission land. In addition, at that time, it was thought that increasing prosperity, higher standards of education, improved access to transport facilities and more leisure time had all led to a growth in the demand for outdoor recreation. Furthermore, evidence from recreation monitoring estimated that the public annually made some 50 million visits to Forestry Commission land, in addition to large numbers of visits to private sector woodland.

Around the same time (late 1980's), the recreation value of the Forestry Commission estate was established via a series of travel-cost models (TCMs) covering 15 forests, representing the entire range of forest types in the FC estate. The TCMs estimated a consumer's surplus of around £2 per person per visit (in 1988 prices), although this varied between individual forests from £1.34 to £3.31 per person per visit, depending upon the characteristics and location of each forest. In 1992, H. M. Treasury halved the consumers' surplus of £2 per person per visit to £1, and permitted the Forestry Commission to use it in estimating the social value of its investments. The recreational value of £1 in 1988 represents (accounting for inflation) around £1.90 in February 2007.

The 1994 review also recognised that the Forestry Commission had created a multitude of excellent facilities for visitors (such as car parks, picnic sites, trails and walks) throughout the country to help people enjoy informal access. It also provided information through its visitor centres, notice boards, leaflets and ranger services, and it revealed that every year, over a million nights are spent by holidaymakers on its sites. After reviewing all the evidence, the Government ultimately sought to continue their encouragement of access to woodlands, and of the enhancement of positive recreation provision. Thus, the monitoring of visitor numbers and measurement of consumers' surplus both contributed to the evidence base that informed the final decision to maintain a publicly funded national forest estate.

More recently, within the 2003 Economic Analysis of Forestry Policy in England, which demonstrated the market failure rationale for UK government intervention in forestry in a variety of policy areas, including recreation, the public estate recreation provision was shown to comfortably pass the cost-benefit test. The study concludes that the main case for government intervention in forestry is to deliver public good outputs in the form of amenity, recreation and biodiversity.

The 'Social and Environmental Benefits of Forests in Great Britain' study is another influential piece of work which validated spend on recreation by the Forestry Commission. This study presented two key findings for recreation, a marginal benefit of each visit of between £1.66 and £2.75 (depending on the forest attributes), and an annual recreational benefit value for all woodland of £393m. The importance of these figures lies in their use as monetary valuations that can be attached to recreation, thereby highlighting its overall importance. In this study, recreation was the largest component in the overall value of social and environmental benefits, higher than the values associated with biodiversity, carbon sequestration and landscapes.

A follow up study, completed in 2006, 'Valuing Forest Recreation Activities', examined recreational users of seven forests across the UK, including cyclists, horse-riders, nature watchers and general visitors. Local economic impacts were studied for each forest area, and a travel-cost method was applied to estimate the value of each activity at these locations, ranging from £7 for nature walkers to £15 for cyclists and forest users. It is anticipated that this study will be influential in continuing to validate Forestry Commission recreational spend.

National recreation surveys in Scotland

Scottish Natural Heritage (SNH) has been set a key target by the Scottish Executive to “Improve public enjoyment of the countryside as measured by increases in the number of walkers visiting”. This target is driven by the need to monitor the effect of the implementation of the Land Reform (Scotland) Act 2003, which introduces a statutory right of responsible access to most land and inland water for the purposes of recreation, access, education and some commercial enterprise. SNH will meet this target by running a ten-year programme of continuous monitoring of participation in, and attitudes to, outdoor recreation in Scotland. The vehicle for the delivery of this is the Scottish Recreation Survey (ScRS). SNH has been joined in the Scottish Recreation Survey by project partners the Forestry Commission, who use the national level monitoring to benchmark forest-based recreation research and to monitor trends in overall participation in visits to woodland in Scotland.

The ScRS has now been used to support policy development in the form of the forthcoming SNH policy on outdoor recreation – ‘Enjoying the Outdoors’, which builds on the trends found in the ScRS. For example, this policy uses the tracking of recreation spend after the Foot and Mouth outbreak in 2001, in conjunction with the ScRS figures on average spend per visit, to outline the key economic benefits of outdoor recreation and to help plan our response to any future similar issue. Additionally, tracking of the public awareness of the new access legislation in Scotland, together with awareness of the rights and responsibilities under the legislation, will be used to target current and future awareness raising efforts for the access education programme. Furthermore, contextual data from the ScRS was used in the provision of SNH advice to Scottish Ministers in the early stages of planning for a proposed Coastal and Marine National Park.

Over the 10 years of the ScRS, SNH will monitor trends in people’s participation in recreation and use this as the basis for a series of ‘Natural Heritage Trends’ publications. These trends publications in turn will support high-level indicators used to monitor the state of the natural heritage in Scotland, and are a key part of providing monitoring of the Scottish Executive’s Sustainable Rural Development Policy. This information will be available as raw statistical data, but will also be presented spatially, via planned maps of recreation demand and participation.

The results of the ScRS and a biennial Public Opinion of Forestry Survey in Scotland provide an indication over time of the Scottish people’s attitudes, knowledge, use and support of forestry and woodlands. They provide, amongst other things, useful insights into public opinion, the success of campaigns and the proportion of citizens that visit woodlands. The data are used in a wide variety of fora including Ministerial speeches, news releases and corporate publications and are used as supporting evidence for a range of programmes of expenditure. It is anticipated that once a series of annual results have become established, results from this survey will continue to contribute to a suite of national forestry indicators used to benchmark policy over time within the Scottish Forestry Strategy. For example, work with the Woodland Trust on accessible woodland has revealed the amount of woodland with recreation opportunities near to where people live.

The Public Opinion survey data has previously revealed some interesting views when results are examined by category of respondents. An example of this is the reasons that older people have given for not visiting woodland in comparison to the reasons given by younger people, results which have informed the future approaches that have been taken with different groups.

4.5.3 Impacts of recreation monitoring - local level examples

Numerous site-specific visitor surveys have been completed in GB over the last few years, and some are described in further detail below. In most cases the surveys were undertaken in order to enhance understanding of the local customer and usage patterns; they have had a wide variety of impacts and informed a range of changes.

Westonbirt

Westonbirt, the site of The National Arboretum, is home to a tree collection consisting of some of the rarest and most beautiful trees in world. Evaluation and monitoring via a series of on-site and postal surveys over the last few years have played a considerable role in assessing and improving the activities on offer.

The introduction of opportunities for play has, until recently, been an unthinkable proposition for Westonbirt, due primarily to the arboretums historical significance, however recent studies have shown that families were the least satisfied of all user groups and wanted more family-orientated facilities. In addition, the monitoring work revealed that an overwhelming majority of all site members were in favour of sensitive play provision. This work helped to confirm the direction which play provision should take in practice. For example, monitoring has helped to establish the age groups to focus on and uncovered a demand for informal nature play. Evidence was also obtained which revealed that different aged children required different forms of play. Families with children under the age of five needed more formal play areas with easy access and a location close to the main facilities focusing on active play. However older children, aged five to ten, desired opportunities for creative or imaginative play, enabling the development of new skills and learning and these activities could be located further away from the main facilities. In addition, decision making has been helped by new interpretation panels and high quality on-site signage.

New Forest

The four year PROGRESS project, which began in October 2003, is a €3.7 million initiative co-funded by the EU that examines the impacts of increasing recreation pressure on protected conservation areas in the UK's New Forest and the Forêt de Fontainebleau in France. These two sites were selected as they share much in common. Both have a strong cultural heritage and support a huge variety of wildlife, including many internationally rare species. They are also famous for their wild and natural character, their wide-open spaces and beautiful scenery.

However, they also share the attendant problems that go with their prized status. Both lie within easy reach of huge populations and attract millions of visitors every year. Numbers have swelled enormously over the past three decades, with potentially serious ecological consequences. Wildlife can be disturbed by the activities of people, and vulnerable habitats have come under increasing pressure from the countless feet, horses' hooves and cycle tyres. Therefore, a sustainable, effective and practical strategy to safeguard the forests for the future is essential.

One of the first major project tasks involved finding out about the people visiting the New Forest and Fontainebleau. Throughout 2004 and early 2005 an extensive visitor survey was conducted at both forests checking how many people come, what they do, where they go and why they choose the forest over other attractions. Over seventy sites were surveyed in the New Forest. They were carefully chosen to cover areas popular with local people as well as visitors from far-

ther afield. A huge amount of useful data was amassed, including information from nearly 3,500 individual interviews conducted on-site. A telephone survey was also undertaken to supplement the field survey.

All these data were analysed and entered into special computer models, which assessed the interaction of the ecology with recreational use across the two forests. The models predict where likely disturbance or erosion will occur, and provide detailed maps identifying which locations, sensitive habitats or wildlife are under the greatest threat from recreation pressure.

The project then devised pilot schemes designed to ease the pressure on sensitive sites and redirect the public away from vulnerable areas, for example by improving gravel tracks for horse-riding, building a mountain bike trail outside the forest, moving car parks and other measures to help channel recreation. In parallel with these physical changes, campaigns have been developed in partnership with local tourism businesses to raise awareness of the ecological importance of the forests and promote responsible behaviour.

One key aspect of the project is the strong involvement of local communities and stakeholders at both locations. Both in the New Forest and Fontainebleau, stakeholder forums were formed from statutory agencies, forest user groups and businesses, to ensure that any actions have broad support and can be sustained into the future. One of the early achievements of the New Forest stakeholder group is the production of new codes of conduct for popular activities such as horse-riding, dog walking and cycling, plus a general out and about guide. These codes carry important messages designed to provide guidance to forest users on how they can help protect the area they enjoy so much.

Other initial impacts in the New Forest have attempted to make the sites more robust and better able to cope with visitor pressure. These have included the opening up of the ride network, increased access to woodlands, more site maps, better and increased car park security, more picnic sites and the closure of some car parks during peak nesting periods. The project has many other aims such as establishing health walks in the forest and forging closer links with schools to raise awareness of conservation issues. The project will end in September 2007 when the valuable lessons learned over the life of the project will be drawn together and published in a handbook. These important lessons will be disseminated across North West Europe via scientific articles and the project website so that land managers can apply them at other internationally important sites.

Mountain biking & walking in Scotland

The **7stanes** mountain bike project originated in the spring of 2001. Its simple but bold vision was to establish 7 world class mountain biking centres across the south of Scotland, with the aim of attracting mountain bikers from across the UK to the area, thereby contributing to the diversification of the recreation product on offer in the forest and stimulating visits to peripheral rural areas. Six years on, the project was hailed by IMBA (International Mountain Bicycling Association) as the single most important development in securing “Global superstar” top position for Scotland in the IMBA rating of top mountain biking spots.

With the help of effective economic evaluation and additional customer survey work, the project team were able to gather appropriate information about the different types of riders, usage patterns, accommodation preferences, length of stay and travel time to destination information. The economic and social research added real weight to the development of the 2nd phase of the

project, reflecting the need to widen the appeal of the trails, encouraged the formation of effective business development groups and the creation of a better targeted marketing campaign.

Monitoring and evaluation are key components to understanding the rapidly changing needs of the mountain bike market ensuring value for money in future investments. More qualitative research has assessed how visitors perceive the facilities and resources offered and examined product gaps. For example, collaboration with VisitScotland on a study of the cycling holiday market has revealed a desire for bike hire close to mountain bike trails used by visitors.

Mountain biking in Scotland extends to many areas outwith the 7stanes area in the South of Scotland. For example, it is estimated that mountain bike trails have attracted 16,000 new visitors to **Laggan Wolfrax** in the highlands, over the last twelve months, bringing an additional annual expenditure of £280,000 to the local area and businesses. The figures were identified following an evaluation study of the Wolfrax facility, comprising interviews with over 500 mountain bikers and 100 walkers that took place in 2006. Figures such as 75% of the mountain bikers rating the facility as 'very good' and 95% of visitors stating that they were in the area to specifically visit the Laggan Wolfrax facility, indicate that the original investment was money well spent. However, the data also revealed the need to avoid complacency.

The study recommended that the successes so far should be seen as a springboard for a broader marketing approach for the area, including increased promotion of the development and enhancing awareness of its additional attractions (such as for walking and pony trekking) in order to generate more overnight stays. The study also implied a need to maintain and continue to enhance the cycle trails themselves via investment in a wider range of longer trails. Recent visitors to the area will have noticed the start of this work with directional signs from the main access road to the Highlands (A9) now in place, a gateway information portal and the construction of a new 'safer to school' route also underway.

Glen Affric visitor management project

A visitor management project for the Glen Affric pinewoods was conceived in 1993 as part of an overall management revision process. At the time, it was apparent that visitor numbers to the area had risen to around 15,000 per annum (p.a.) and that there was a good deal of negative impact from visitors, typically involving:

- extensive littering;
- a profuse number of fire rings in close proximity to the main visitor contact points;
- roadside car parking with consequent erosion and rutting;
- extensive 'desire lines' in many places including in some sensitive environmental site;
- a threat from visitors to specific key botanical species present in the woodlands;
- litter bins, roadside fences and road signs in a poor state of repair;
- a modest toilet housed in a portable wooden unit, operated only during the summer;
- ample evidence of fouling in many locations, chiefly near car parks;
- anti-social behaviour, relating to rowdy - ostensibly 'fishing' parties camping overnight.

The management proposals contained in the plan, which went beyond the resources of the local Forest District budget, resulted in a decision to seek external funding under a partnership scheme,

a process that was unfamiliar at the time (funding having traditionally always come entirely from a central treasury source). Ultimately, a submission to the EU LIFE programme was successful. Over the next year, the area was declared a Caledonian Forest Reserve and many of the negative impacts were addressed. New threshold boards, waymarkers and interpretation panels were provided, paths were upgraded, some desire lines closed off, two new viewpoints created, car park areas were redefined, roadside traffic markers installed and roadside parking prevented. Additionally, a new visitor leaflet was produced, a seasonal ranger service introduced and a programme of 'What's On?' events initiated.

Pro-active ranger work helped to eliminate fire ring scars, prevent litter and other anti-social behaviour. A visitor survey was undertaken (and then repeated annually for 5 years) and traffic counters were installed in several places. An environmental survey progressively revealed that the threat from visitors had been substantially reduced and that the status of key botanical species had improved. Several wildlife species, including black grouse, improved their status too, and osprey became established in the Reserve for the first time latterly, with three breeding sites now existing within the vicinity of the Reserve.

The LIFE project was a great success and formed the basis for a permanent ranger post that has been present in the Reserve ever since. Visitor numbers peaked at around 70,000 per annum a few years ago and currently average around 40,000 per annum, around 40% of who visit from overseas. This activity eventually contributed to Glen Affric being given the accolade of National Nature Reserve and upon formal designation in 2001, the area under environmental management was extended. The Reserve has attained a high public profile and remains a popular destination for visitors.

Chopwell Wood Health project

The overall aim of this project was to improve the health and well-being of local communities surrounding the wood and build the evidence base in relation to woodlands and health. A partnership between the Forestry Commission, Gateshead Primary Care Trust, Derwentside Primary Care Trust and the Friends of Chopwell Wood was set up in 2004.

There were two elements to the project:

- A General Practitioner (GP) referral scheme in which Gateshead GP's could refer patients they felt would benefit from exercise to Chopwell Wood to cycle, walk, undertake T'ai Chi or to carry out conservation work.
- Four schools in Derwentside made four visits each to Chopwell Wood to carry out activities, learn about health and nutrition and about complementary therapy. These visits were in support of the Healthy Schools Standard that is a government initiative to promote pupils' physical and emotional well-being.

Monitoring and evaluation was incorporated into the work from the beginning and examination of the Gateshead GP referral scheme has revealed that the majority of individuals continued to participate in Chopwell Wood activities post programme. In addition, the impact on individuals' lives had been the improvement in physical health (particularly weight loss) and an enhanced social network. Some of the post programme impacts of the Derwentside Healthy School project have included a significant increase in the percentage of pupils regarding the wood as a healthy place (87% post, compared to 74% pre) and an increased usage of Chopwell Wood amongst young people, staff and families.

4.5.4 Conclusion

Knowledge of the customer base is essential to most businesses and no less so to the business of forest management and providing outdoor recreation opportunities. Monitoring of our users allows us to better meet their needs and be more able to attract new users through effective promotion. In addition, visitor monitoring helps us to demonstrate to funders and policy makers the value of forest recreation to rural economies, health, well-being and quality of life. The knowledge generated from recreation monitoring can be applied to planning and management processes, and whether explicitly detailed in policy documents at a local/national level or not, often provides evidence that supports changes in practice.

Chapter 5. Summary and Conclusions

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5.1 Summary and conclusions of policy background

Most countries have implemented a National Forest Programme or an implementation process is currently in progress. Often, outdoor recreation is part of these programmes. Nevertheless, it is not yet clear whether outdoor recreation will achieve the same level of importance as other forest functions have for national public authorities. The need for providing recreation opportunities and for suitable management by public authorities is often specifically expressed – as it also is on the European level. Different countries give the social dimensions of forests varying levels of priority. Only a few countries assign outdoor recreation a very high political priority and /or include it within high-level objectives and strategies. In contrast, legislation is more precise in regulating recreational use on a national level. The regulation of access for recreational purposes is included in most relevant forest and/or nature conservation/protection legislation.

The need for recreation information (recreation monitoring) is found in only one of the surveyed National Forest Programmes (Denmark). At the present, there is therefore no common basis for recreation monitoring systems as recommended in (Pan) European Policy Programmes.

As recreation gains higher societal importance, the pressure on suitable natural resources will most likely rise - as indicated by the results of the analysis of the relevant policy and legislative documents (chapter 2). In conditions of rapid social change, a lack of recreation demand and supply information, and information-based management methodology, could be among the main factors to hinder the development of effective and sustainable recreation policy and management. Comparable statistical data across Europe could serve as a sound information base to evaluate the quality (and equality) of environments for recreation and tourism, highlight the need to improve outdoor recreation policy, planning and management and help to detect societal changes over time.

5.2 Summary and conclusions of recreation demand inventories

5.2.1 Nation wide recreation inventories

Nation wide recreation inventories are commonly undertaken in European countries. Over the course of 35 years (1970-2005), more than 60 household surveys were indentified in 14 countries. A diversity of national recreation survey objectives and practices is evident in European countries.

Firstly, information on forest recreation frequently originates from non-forest institutions. In several countries, the main purpose of the study is not forest recreation but outdoor recreation, leisure in general or living conditions in general. Secondly, the focus and topics chosen for recreation monitoring vary remarkably. In some studies, recreation behaviour patterns are the main focus, in others the recreational use of forests, and in some cases, an economic valuation of recreational use is the main interest. The methodologies and variables employed vary between countries and surveys. The population groups selected, sample sizes, and data collection methods are typically divergent. This diversity in variables and measures used for the same type of research topic can lead to differences in the interpretation of results.

The analysis presented in chapter 3.1 highlights the challenges in obtaining relevant, comparable data from current national recreation surveys at a European level. In order to develop a more harmonised basis for monitoring recreation demand, a greater degree of Europe wide co-operation is required. A logical first step when contemplating increased harmonisation would be to consider the definition of recreation environment (forest, nature, green space etc.) and then the key topics for comparisons, and consequently what the relevant measures need to be discussed and formulated. Examples of the sort of topics and variables that could be harmonised are the list of potential recreation activities and the frequency of visit questions, and, in addition, the type of recreation environment, such as protected area, urban forest, state owned land and private forest.

5.2.2 On-site visitor monitoring

The intensity of on-site forest recreation monitoring activity varies considerably among the countries. While many of the Northern European nations monitor recreation use in forests on a regular basis, fewer efforts exist in some of the Southern and Eastern European countries. The majority of forests surveyed were state-owned or other public forests, while private forests were only included in the surveys in Denmark. In some countries such as Finland, recreational use of national parks, some other protected areas and state hiking areas is monitored on regular basis. In some other countries such as Austria, knowledge on urban forest recreation is well developed because of the scientific and urban forest administration's interest in overuse of urban and suburban forests. A perceived growing demand for urban green spaces should be measured and this information would provide a sound information base for recreational infrastructure planning and management.

Due to the variety of visitor monitoring strategies employed, the different methods used and the range of variables measured, comparisons of visitor intensities, structures and profiles between countries are often not straightforward. In addition, the diverse set of different forest types among the European countries – urban, remote, alpine, coastal forests etc. - can require specific monitoring strategies, further complicating any comparisons among on-site studies. The main methods used are on-site interviews and counting of visitors by human observation. Countries that employ a range of methods also often measure more variables and produce high quality data consisting of qualitative and quantitative long-term data on on-site recreational use.

There is a rich European knowledge base on how to monitor visitors across a diverse range of forests, so greater pan-European knowledge exchange would assist those countries undertaking a new form of research. A future challenge is to produce comparable on-site visitor information that will allow Europe wide comparisons of the recreational use of forests.

5.3 Summary and conclusions of recreation supply inventories

Recreation supply can be regarded as both the area/land resources available to visitors (forests, heathers, mountainous areas etc.) and the man-made, managed facilities found inside the nature areas. The recreation supply assessment conducted by COST E33 identified three principal sources of information: 1) *questionnaire surveys involving national professionals*, 2) *assessment of national web-based information systems*, and 3) *Pan-European GIS databases*. Each of these sources has its strengths, weaknesses and possible directions for development into the future.

The challenge when examining both the questionnaire surveys and the available web-based services is that the data vary considerably between countries and organisations, and that no single person or institution has sufficient knowledge to answer for an entire nation. Using either of the two approaches requires an application of a standardised survey format. The main challenge is to formulate such a standard in a way that makes sense in relation to all partners involved. For comprehensive national assessments based on questionnaires it further requires that central, national organisations take responsibility for conducting the survey through all administrative layers – horizontally as well as vertically.

The problem identified when examining recreation supply, based upon transnational GIS-data, is that true international data sets often lack the required level of semantic detail to be truly useful. For instance CORINE, which is the most frequently applied data source for land information, only provides information about land cover. Currently no data source provides transnational standardised information about ownership, accessibility or other relevant types of recreation supply data. It is hoped in the future that the INSPIRE initiative will address issues relevant to the recreational opportunities provided by our natural resources. An additional, major advantage of using GIS based data sources is that it enables further spatial analysis, for instance, merging and aggregation with other types of geographical data (e.g. alternative administrative or ecological area units).

5.4 Summarising the forest recreation demand and supply situation in Europe

Diversity among the countries dominates when summarizing the recreation demand and supply situation in Europe. On the supply side, forest cover varies substantially within the surveyed countries ranging from 9% to 73% (see Chapter 3.3). While a high forest cover potentially implies smaller distances between urban areas and forests, a low forest cover may indicate larger distances between settlements and forested areas. Thus, a variety of different outdoor recreation supply opportunities exist amongst countries and populations.

Based on the forest cover, and thus inherently on the economic importance of the forestry sector, different priorities are assigned to the social dimension of forestry by national governments. In most European countries, the forested area is comparatively large and forests are managed for multifunctional purposes, including recreational supply. Extremes can be found in northern Scandinavian countries, where timber production dominates the ‘triad’ of forest functions, while in less forested countries forest recreation often has a comparatively higher political importance.

Different legal access rights further limit or enhance forest recreation use (see Chapter 3.3). Many countries offer free access to forests for recreational purposes, and limitations in terms of time

and use are related only to protective purposes. In general, future recreation management issues are less likely to arise due to questions of access, but rather by changes in the demand for outdoor recreation opportunities.

These differences in supply seem not to have affected efforts in monitoring the demand for forest recreation (see also Chapter 3.1). Correlations between forest cover and forest area per inhabitant for each country and the monitoring efforts undertaken (i.e. number of nation-wide household studies carried out, number of monitoring methods used, and number of variables asked), revealed only insignificant relationships (Table 5.1). Some countries with low forest cover have undertaken substantial monitoring, but also so have some with high forest cover. UK and Denmark are examples of countries with low forest cover and high monitoring efforts, while Finland has both high forest cover and high monitoring efforts. Broadly, most Northern and Central European nations have made more forest recreation monitoring attempts, while less attention has been given to this subject by Southern and Eastern European countries.

Although all European countries are covered to a certain extent with forests, the intensity of forest recreation monitoring activity differs and moreover, a wide spectrum of methods are used and variables collected. Table 5.1 shows significant and positive correlations between the number of on-site methods used for visitor counting and surveys, and the number of variables asked about in on-site studies. This indicates that countries undertaking on-site recreation monitoring carry out research using several approaches and investigate more recreation-related issues. However, no relationships were found between the number of onsite methods used/variables asked and the number of nation-wide population studies. This may be explained perhaps by an absence of a national-wide standardised research strategy and/or by the existence of many on-site monitoring studies, carried out individually for specific objectives; the evidence provided for this project

Table 5.1. Correlation matrix between supply indicators, monitoring efforts and legal documents (Significance levels: ***p < .001; **p < .01; *p < .05; n.s. = not significant)

Variables	Forest Area (%)	km ² forest/Inhabitant	Variables asked in on-site studies (Number)	On-site survey methods (Number)	On-site counting methods (Number)	Nationwide household surveys (Number)	Established forest programmes with recreation mentioned (yes/no)
km ² forest/Inhabitant	***0.719	-					
Variables asked in on-site studies (Number)	n.s.	n.s.	-				
On-site survey methods (Number)	n.s.	n.s.	***0.802	-			
On-site counting methods (Number)	n.s.	n.s.	**0.582	***0.734	-		
Nationwide household surveys (Number)	n.s.	n.s.	n.s.	n.s.	n.s.	-	
Established forest programmes with recreation mentioned (no/yes)	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	-
National forest laws mentioning recreation (no/yes)	n.s.	*-0.560	n.s.	n.s.	n.s.	n.s.	*0.500

shows that many of these on-site studies used diverse methods and asked about a range of variables (e.g. Austria, Sweden).

Similarly, at a national level, a large diversity of methods, variables and monitoring frequencies have been identified, possibly due to differing survey purposes. A few countries, such as Finland and Denmark, have developed national surveys dedicated to outdoor recreation. Others have focused more on 'leisure in general' (e.g. Denmark, the UK, and the Netherlands) or 'living conditions' (Norway), thus including more questions on leisure activities, places and use patterns. Most surveyed countries combine questions on forest recreation in surveys related to more general aspects of forest uses (e.g. France, Germany, and Switzerland) or to the natural environment (Austria). Additionally, some countries have national monitoring systems which are not only based on population surveys but also utilise networks of on-site studies whose results are aggregated at the national level (the U.K. and Denmark). As a result, methodologies as well as assessed variables differ substantially. The variables most commonly assessed among the countries relate to the number of visits, socio-demographics and recreational outdoor activities. Some diversity is gained by conducting frequently both population and on-site surveys. While some surveys run biennially (e.g. in the U.K.) others are repeated every ten years or even less frequently (e.g. France or Switzerland). Thus, the information available do not necessarily represent the actual current recreation situation in some countries.

On the European level, outdoor recreation has been on the political agenda since the 1990s, proposing measurements of the social and cultural dimension of forestry as guidance for national forest policy formulation. On the national level, different priorities assigned to forest recreation are observed in forest programmes and laws. These differences in priority can (but ideally shouldn't) result in different monitoring efforts on a national level.

Several conclusions can be drawn from comparing the demand and supply side information provided by the countries, and from their relative monitoring efforts. No significant relationships were found between monitoring efforts and on-site surveys, population surveys and legal documents (such as national forest and/or nature conservation/protection laws and forest programmes) mentioning recreation. Similarly, no correlations were found to exist between forest recreation supply (forest cover and forest area per inhabitant) and legal documents, except for the significant negative correlation between national forest laws mentioning recreation and forest area per inhabitant. Although outdoor recreation has been on the European political agenda (see for example MCPFE) and has been included in several national forest laws, this has not resulted in higher monitoring efforts. One explanation for the missing relationship could be that in most laws, recreation monitoring is not explicitly mentioned or required (see Chapter 2). The missing relationship between forest cover and recreation issues in legal documents indicates that forest supply has no effect on the consideration of recreation in national forest laws. However, the negative correlation between national laws in respect to forest recreation and forest area per inhabitant perhaps indicates that less forested and denser populated countries might be more concerned about conflicts arising from the undersupply of forest and recreation areas.

Based on the data provided and taking in to consideration its limitations, there is not much evidence of a link between forest supply, the monitoring efforts undertaken and legal and policy documents reflecting the societal need for forest recreation. Independently of the amount of forest supply among the countries, all care for sustainable forest provision and usage. The majority of surveyed countries denote outdoor recreation for society in one or another political and/or legisla-

tive way, but monitoring attempts of recreation uses and users (or supply of recreation opportunities) are seldom mentioned in relevant policies or acts on all respective geographical levels.

5.5 Need for harmonisation and standardisation of recreation information in Europe

5.5.1 Lessons learned from the COST E33 WG2 study

Due to rapid social and land use policy change in Europe, outdoor recreation has gained societal importance in recent decades. Diverse and high visitor demands for recreation opportunities are among the challenges that nature resource managers and decision-makers face today. The forestry sector recognises that outdoor recreation provides an important contribution to societal well being and constitutes part of the “social” forest function within the triad of sustainable forest development. In order to improve sustainable forest management, the need to provide outdoor recreation opportunities in terms of access and quality is stated in several European policy documents. The basic and most important document is the “Ministerial Conference on the Protection of Forests in Europe” (MCPFE Vienna 2003) report. It states various (relatively simple) indicators related to recreation, which must be considered for future monitoring. Outdoor recreation is therefore of political importance at the European level and provides guidance for national forest policy formulation. The need for information about forests and societal needs, including recreation, is also expressed in (Pan-) European Programmes and actions, as a necessary precondition for forest policy implementation, although compared to timber production and protective purposes, the social dimensions of forests are often stated with less importance and are less specific in characterisation. Attempts have been made in the past few years to include measurements of the social and cultural dimensions of forestry e.g. by proposing criteria and indicators, which should be implemented at a national level (National Forest Programmes, SFM indicators). Here, differences between the countries are observed; differences because of varying priority settings and differences in the implementation status of the Forest Programmes. However, the various criteria and indicators used in European countries do at commonly cover the area of forest that can be used for recreation.

Careful planning is a necessary prerequisite for multifunctional and sustainable forest use. A regularly updated information base is key for efficient planning and management ; it can help to detect changes in usage and users over time and inform adjustments to recreation policy and legislation. Standardised European methods to measure recreational use do not yet exist. A European wide comparison of recreational usage and users based on quantitative measurements is not currently achievable due to a lack of common monitoring practises and methodology.

The contradiction between the expressed political importance of outdoor recreation on both the European and national level, and the non-binding commitments in this respect are among the main findings of the analysis of policy and legislative documents. The majority of the surveyed countries recognise and explicitly denote outdoor recreation for society in one or another political and/or legislative way, but rarely are information measurements or recreation monitoring efforts stipulated in relevant policies or acts on the national, regional or local level. This might be because of less real national political willingness and/or a lack of financial resources. One of the recommendations emerging from this analysis is that a consistent forest recreation monitoring and

controlling framework, linked to the sustainable forest management paradigm described in e.g. the Helsinki process should be developed and transferred into national policy and legislation.

As indicated by the results of the analysis of relevant policy and legislative documents carried out by Working Group 2 of the COST Action E33, as recreation gains higher societal importance, the pressure on suitable natural resources will most likely rise. In conditions of rapid social change, a lack of recreation demand and supply information, and information-based management methodology, could be among the main factors that could hinder the development of effective recreation policy and management. Comparable statistical data across Europe could serve as a sound information basis to evaluate the quality (and equality) of environments for recreation and tourism, highlight the need to improve outdoor recreation policy, planning and management and help to detect societal changes over time.

5.5.2 The need for Europe wide comparisons of recreation information, inventory methods and databases

Positive environmental attitudes and values related to forests in Europe are gaining more emphasis in policy making in Europe, although the quality of environment is in some places deteriorating, and the wellbeing of many people is not improving sufficiently despite growing prosperity. This leads us to examine the relationship between people and nature in general, and also leisure and nature in particular. There is more awareness of the importance of nature-based recreation both from ecological and environmental perspectives and from economic, social and health and wellbeing perspectives.

Experience from some European countries and from the USA¹ shows that when the recreational use of natural resources, and forests in particular, is well documented by recreational research and inventory data, at different levels from local to national, it can lead to a variety of different policy actions and (re)allocations of resources. Good examples come from United Kingdom (particularly Scotland), Norway, France, Denmark and Finland. When forest recreation demand is not properly documented it may lead to a lack of recognition in forest policy and management.

Comparable information from European countries would provide useful knowledge about how equal people in Europe are in terms of the provision of recreational opportunities in nature. The equality analysis would ideally examine different population groups in each country and between countries, especially elderly population groups, children and young people and the urban poor. Secondly, local and regional differences in the supply of recreation opportunities demand more attention. The supply of natural resources varies significantly across Europe and is influenced by,

¹ In the USA, the first, fundamental step to govern the recreational needs of American people was taken 50 years ago. The USA congress established an Outdoor Recreation Resources Review Commission in 1960, which was tasked to provide and deliver information on outdoor recreation (Outdoor Recreation Resource Review Commission 1960). The Act and the following action to start the Outdoor Recreation Resources Review Commission (ORRRC) process stipulated the need for recreation research in the USA, and also the need for continuous nation wide monitoring of recreation demand and supply. Currently, the National Survey on Recreation and the Environment (NSRE) represents the continuation of the ongoing National Recreation Survey (NRS) series, which was begun in 1960 by ORRRC. The first NRS was a four-season, in-home survey of outdoor recreation participation in the United States. Since that time, five additional NRSs have been conducted in 1965, 1970, 1972, 1977, and 1982-83, and one NSRE in 1994-95. A continuous nation wide monitoring system of outdoor recreation commenced in 2000, conducted by Dr. Ken H. Cordell in USDA Forest Service.

for example, geographical location and historical land use. There may therefore be a case to make comparisons and analysis on a more homogenous regional basis, such as Northern European, Central European, Southern European and North-West (Atlantic) European regions, rather than across Europe as whole. This aspect of complexity and diversity of human and natural characteristics between different countries (and even within one country) demands attention in future actions relating to the development of recreation monitoring programmes in Europe.

Nature tourism is a growing market in Europe. According to Eurostat (2006), nature based local experiences are an essential part of the tourism product. Information on demand and supply of nature-based recreation is also required by tourism industry. Naturally the role of forest as an important landscape for tourism varies in different parts of Europe.

Europe wide comparisons are still needed for large-scale political purposes, for example, to provide information on sustainable forest resource usage in Europe. Because of the absence of markets for (most) environmental and social goods, and services provided by forests and other natural resources, these services are not provided to the extent required by society. Recreational services provided by forests are typically a 'public good', which is undervalued in economic terms because there is the assumption that these services are available anyway, and freely offered to all. Recreational values can be calculated using documentation on the actual recreational use of forests, and valuation of this use by means of research (instead of real market actions) could improve the balance between market goods such as timber and non-markets services such as recreation. The Ministerial Conference on the Protection of Forests in Europe (MCPFE) has produced Pan-European Indicators for Sustainable Forest Management (SFM)². These indicators include measurement of the recreational use of European Forests. Criterion 6, titled Maintenance of other socio-economic functions and conditions, particularly the indicator 6.10 'Accessibility for recreation' demands information on recreation in forested land. The measurement unit is the number of forest hectares that provide free access to the public for recreational purposes. This will be monitored and changes reported, inclusive over time (10 year) alongside the intensity of use. The intensity is defined to be measured by 1) area of forests and other wooded land with recreation as one of main management goals, 2) number of visits in forests and other wooded land, 3) number of facilities in forests and other wooded land. Indicator 6.10, with several measurement units to be monitored, is an effective reason to produce recreation monitoring data in European countries in coming years. (None of these three last mentioned measures have been reported so far in the statistics from MCPFE (2007))³. Pan-European processes of assessment of sustainable use of forest resources and equal opportunities for people to achieve a good quality of life in terms of nature based recreation and nature tourism requires establishment of solid monitoring systems to capture the required information. However, the definitions for the measurement units, methods used and reporting procedures, which will guarantee comparable and reliable information basis, have still to be defined.

In addition, the European Commission's Directorate-General for Agriculture and Rural Development has recognised the need to improve information on non-marketed forest products and services. It has called for a project (Study on development and marketing of non-marketed for-

² Improved Pan-European Indicators for Sustainable Forest Management 2002. MCPFE Expert Level Meeting Vienna, Austria. Background Information for Improved Pan-European Indicators for Sustainable Forest Management. Vienna February 2003. Available at <http://mcpfe.org/publications/pdf>

³ State of Europe's Forests 2007. The MCPFE report on sustainable forest management in Europe.

est products and services, 2007⁴) to identify non-market forest goods and services, and review methods for proper valuation of these goods and services and the mechanisms compensating for provision of these goods and services. Reliable base-line information of actual use of these goods and services is essential if 'real world' assessments of non-market goods and services are to be processed in EU. Remarkable efforts are taken to gather information on timber production and harvesting, and even on biodiversity, but the 'evidence' of recreational use is poorly documented even that recreation opportunities are important for the majority of European citizens.

The Outdoor Recreation Resource Review Commission in the United States (1962, modified) stated the goals for recreation monitoring policy action as follows: '1. To preserve, develop, and secure accessibility to all people of present and future generations such quality and quantity of outdoor recreation resources as will be necessary and desirable for individual enjoyment, and to assure the spiritual, cultural, and physical benefits that such outdoor recreation provides; 2. To inventory and evaluate the outdoor recreation resources and opportunities, to determine the types and location of such resources and opportunities which will be required by present and future generations; 3. To make comprehensive information and recommendations leading to these goals.' Most European countries and the European Union are far behind the United States in terms of national and Europe wide recreation monitoring systems. It is time to take action to close this gap. Furthermore, some harmonization and standardization of recreation monitoring goals and methods throughout Europe could assist countries, which do not undertake recreation monitoring at present, to establish a monitoring system, which would serve national but also Europe wide information needs.

Lack of European forest policy and lack of policy for nature based recreation and nature tourism in particular are obvious reasons to develop better recreation monitoring systems. A better information base would help support political goals and define national policies and actions needed. Both the sustainable use and management of forests and fulfilling peoples need for recreation opportunities require more political input; reliable recreation information would provide a useful input for this purpose.

5.5.3 Limitations and complications to harmonisation and standardisation

COST Action E33 Working Group 2 identified several difficulties and possible limitations for harmonisation and standardisation of recreation monitoring across Europe. One of the most obvious difficulties is the definition of the 'recreation environment or site'. Naturally, the recreation environment commonly visited (and natural conditions of that environment) varies considerably across Europe. The terms used in different languages can have culture-related interpretations which are difficult to harmonise into a common international definition. Moreover, even if researchers are able to define 'what is forest', survey respondents may have their own understanding of 'what is forest' based upon the natural environment and types of forests that they have experienced or visited. It may be even harder to devise a common 'forest' definition for research on the recreational use of forests, especially in comparison to the UN-ECE definition used for forest inventories.

⁴ Study on development and marketing of non-marketed forest products and services, 2007. Tender specification-tender no AGRI-2007-G4-13. European Commission Directorate for Agriculture and Rural Development.

The same types of difficulties apply to many other terms used in recreation surveys. One attempt to identify the extent of this issue was to develop a Glossary of terms for use in working group 2 (see Appendix 2.)

Another difficulty is that some countries have already established long-term recreation monitoring systems, which may be difficult to merge into common European standards. This is why the development of harmonised and standardised methods must be done together co-operatively, in order to find the best solutions to preserve the long-term trends of those countries. Agreement on common measures and scales, which guarantees comparability, would be desired although there may well be multiple ways to produce the actual measurement and maintain an element of comparability.

One difficulty in proceeding with recreation monitoring is funding both in the European Union and in individual countries. The lack of desire in some countries to consider or implement such new surveys may be also a serious constraint.

5.6 Recommendations for future European Co-operation in recreation monitoring

Resolution for Europe wide recreation information needs

Outdoor recreation is an essential part of everyday life for European people. Opportunities to take outings and enjoy holidays in natural environments improve people's quality of life and provide many social benefits, physical, mental wellbeing and health benefits. Opportunities to enjoy nature and to gain related benefits belong to all people in Europe. Recreation monitoring provides the information base for planning and management to achieve equal opportunities for close-to home outdoor recreation across Europe and among different social groups within individual countries. Nature tourism is becoming a major source of income in many rural communities in Europe. Information on recreational opportunities and capacity is essential for successful and sustainable nature tourism.

The European Union needs comparable and consistent information on the recreational opportunities and on the demand for outdoor recreation and nature tourism within European countries.

Recommendations for action

These recommendations summarize the conclusions made by COST E33 Working Group 2 experts: So, what should be done in the future to improve the status of recreation information in European countries and in the European Union? This section first sets out some recommendations for individual countries and then presents some suggestions to direct discussion and action in the European Union and amongst European countries.

National goals for recreation monitoring

1. European countries should have a national policy for forest recreation monitoring. The first step is to identify national recreation information needs. The second step is to establish a research programme to provide recreation information on a continuous basis, both on national level and at specific sites. It is a recommendation of this group that a central governmental institution in each country is identified and takes responsibility for conducting data collection and compiling comprehensive statistics and databases. The main aim should be to produce recreation information which is comparable between regions and between countries, and which is consistent over time. To achieve this goal, standardisation of information contents and harmonisation of methods are required. In addition, it is worth considering how recreation inventories could be integrated with forest inventories and other types of national surveys such as general leisure surveys. When conducting any kind of monitoring, concerns about the privacy of people should be considered
2. Recreation information is needed to feed into indicators and standards for proactive planning for sustainable forestry, for allocation of resources and funding, and for successful management of forest resources in general. Urban forests, protected areas and designated recreation areas need attention in particular, but also areas where recreation is not the main type of use, or in areas where forest recreation is not the main purpose of visit (e.g. coastal forests). Indicators and standards are required for developing recreation services and other infrastructure, which on one hand support people to use forests for recreation purposes, and on the other hand protect natural resources against deterioration caused by recreational use.

Pan European goals for recreation monitoring

3. Similar to other forest-related topics such as biodiversity, or social matters such as health and an aging society, the European Union should consider recreational needs related to forests. Doing so may help improve the status of forest recreation in Europe. An important step is to identify the key recreation information which support the sustainable use of European forest resources, and which secure recreation opportunities to people in Europe. In addition, this would help to derive market and non-market benefits relating to, for example, health and wellbeing.
4. The recreation information should cover both close-to-home recreation and nature tourism. Opportunities for close-to-home recreation support the health and wellbeing of European community, and should be available equally to all. Recreation opportunities in green environments should be a permanent right for European citizens.
5. Recreation information should be comparable across European countries. One option to provide comparable information (e.g. for MCPFE indicators) is a European recreation survey. The survey instrument could to be developed by pan-European agencies such as EUROSTAT or EFI. In the future, the European Environment Information and Observation Network (EIONET⁵) could be a partner in such work. Additionally, other types of actions and programmes of EU co-operation such as the INTERREG programme should be identified.

⁵ EIONET is a partnership network of the European Environment Agency (EEA) and its member and participating countries. The network supports the collection and organisation of data and the development and dissemination of information concerning Europe's environment.

6. All options for collecting comparable recreation information should be identified. Compiling country specific information, which includes harmonized variables and uses standardised methods is another option.
7. Transnational GIS-data is useful for recreational monitoring, although a challenge is that international data sets often lack the required level of semantic detail concerning recreation to be truly useful. At the present, there is no data source to provide transnational standardised information about ownership, accessibility or other relevant types of recreational data. It is recommended that the INSPIRE initiative will address issues relevant to the recreational use of European natural resources more precisely in future.
8. In order to achieve the goal of producing comparable recreation information in European countries, actions are needed to develop an advanced methodology for a standardized approach. It is recommended that the methodology is developed as a European Union research project, which aims to agree on a set measures and ways to measure. The resulting methodology should be tested in selected countries representing different regions in Europe. The project's outcome should be a recommendation and an agreement on harmonised variables and standardised methodology to be implemented across European countries.
9. Forming a European working group with the objective to consider the development of a standardised outdoor recreation monitoring programme at a European level seems a logical step forward.

To whom the recreation information is beneficial

To improve the status of recreation policy in European countries the first target groups are the politicians and administrative units who are responsible for natural resources, the environment, and public health and quality of life. Secondly, the national, regional and local agencies concerned with natural resources, as well as land owners who manage natural resources for recreational purposes (or whose land is used for recreational purposes), will benefit from updated and nationwide recreation information. It is often not possible for a single agency to obtain information to compare to their own activity. Many of those conducting economic activity based on natural resources, particularly on forested land, need a good information base to capture the volume of demand and characters of the client basis; nature tourism enterprises are thus an important user group for recreation information. Finally, our societies in general benefit, because the better planned and managed forests are better for all - particularly for the growing urban populations.

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Austria

COST ACTION E33 WG2 Country report

Recreation and nature tourism demand, supply and actual usage

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1 Introduction

The total surface area of Austria under forest amounts to more than 3.9 million hectares, resulting in a forest share of approximately 47% of Austria's territory (Russ, 2004). About 79% are production forests and 19% are protection forests with special regulations due to their ecological sensitiveness; 1% of the total Austrian forest area has been assigned primarily to recreational function (Singer, 1999/2004). Since the 1980s the annual growth of forest areas amounts to 2,000 ha/year. The public is legally allowed to enter a forest in Austria, however, this is not granted for all recreational uses. For example, cycling is not allowed in Austrian Forests, but some trails are open for cycling based on agreements between landowners and users. Also conservation is a key factor for access restrictions in Austria, both on private and on public land. About 99% of the Austrian forests are accessible for recreational users, and 0.8% are closed due to conservation aspects or are retreat areas for wildlife (Präsidentenkonferenz, 2004). Other sources (European Forest Institute, 2004), however, speak of about 5% of forest and other wooded land being not accessible to the public in Austria.

2 Supply of recreation infrastructure

Austrian Forest Law points out (§6) that it is the task of forest planning to provide forests to such an extent and quality, that provide the following effects

- a) benefit effect
- b) protection benefit
- c) social benefit of the forest (welfare effect)
- d) recreation benefit, which is especially the effect of the forest as a recreation area; this should be achieved and guaranteed for forest visitors.

It has to be ensured that the recreational facilities in forests are maintained (§36). Recreational facilities are in particular parking lots, play grounds, meadows, seating facilities, hiking trails, bi-

Table 1: Recreational infrastructure in Austria (Österreichischer Alpenverein, 2004; Österreich Werbung, n.d., WKO, 2004)

Forest roads	98,400 km
Mountain bike routes	16,000 km
Signed hiking trails	90,000 km
Signed biking trails	10,000 km
Skiing runs/areas	22,000 km; 23,000 hectares
Cross-country skiing trails	16,000 km

cycle paths, bridle paths, huts or other buildings for recreational traffic, animal enclosures, nature trails, sport trails and sports facilities through whose scope and extent the benefits of the forest preferably remain preserved. However, there are no legal documents which point out the need for nation wide recreation inventories. Science-based analysis of the need for recreation inventories were not existent or not published.

Table 1 provides an overview of the recreational infrastructure in Austria. However, there are currently no data available about the total amount of recreational infrastructure in Austrian forests (Arnberger, Muhar & Wagner 2005). Productive forests are accessible by 98,400 km of forest roads, of which more than half lead to farm forests. Moreover, there are 46,600 km of public roads in forest areas, which can also be used for logging and cycling. The highest road density is in farm forests, whereas the Austrian Federal Forests (öbF AG - Austrian Federal Forests) have the lowest. In addition, 140,000 kilometres of skidding tracks are constructed in accessible parts of productive forests. Truck roads are also used for approaches to agricultural land or alpine pastures, as well as for hunting, tourism and other purposes.

The Bundesforste is the largest Austrian forestry enterprise. It controls a total land area of around 862,400 hectares with 525,300 hectares of forest (this corresponds to approx. 15 % of the wooded area in Austria). The öbF manages 108,000 km of forest roads of which 50,000 km are theoretically suitable for bicycling, 25,000 km of hiking trails, 1,812 km of mountain bike routes, 582 km of riding tracks, 253 km of cross country skiing tracks, 82 lakes for swimming, and 1,500 ha for winter sport activities (öbF, 2002/2003, www.oebf.at).

3 Recreation demand

Austria is one of the most famous tourism destinations in the world, and nearly half of its territory is covered with forests. It is surprising that nation wide information is not available about the recreational and tourism use of forests. Analyses of demands have been undertaken in only two of the 75 Austrian forest districts. However, most of the forest managers would like to have some visitor monitoring in their forest districts (Arnberger, Muhar, Wagner, 2005). There are no governmental policy reports and regular nation wide studies such as the micro census which point out the need for a nation wide demand (see for a short overview Schmithüsen et al., 1997).

The Austrian Alpine Association estimates that close to 3 million Austrians participate in cycling, 2.4 million in hiking and mountain climbing, 600,000 in ski touring, and 2.3 mill. in downhill skiing. In addition, about 2.5 mill. tourists take part in hiking and mountain climbing in Austria per year, and 150,000 in ski touring (Österreichischer Alpenverein, 2004).

3.1 National studies

There exist some studies about the use of forests which are done on a nation wide level. However, they cannot be seen as representative for Austria. Lenz (1982) used interviews carried out in respondents' homes (n=1953) by an opinion research institute based on a multistage-random-sampling of household addresses. The research goal was to analyse the public opinion on the forest economy, and forest topics. One of the results was that 84% of the respondents visit forests. In a larger study (Kreisl 1986), well-trained students and foresters interviewed 12,104 on-site forest visitors between 1983 and 1984 on 33 days about visitor activities, attitudes and needs for the development of better recreation facilities in forests and to increase the attraction of forests. Fessel-GfK (2004) interviewed 1,000 persons about their recreational activities in forests: About 38% of respondents visit forests at least once in a week, 29% once per month, and 19% once in several months. About 71% stated the forest is important for their well-being. About 90% visit the forest for hiking, picking mushrooms and berries (40%), wildlife observation (28%), and landscape appreciation (25%). Litter was seen as the most important negative impact (80%). About 70% of interviewees wanted to walk along forest roads, 51% wanted more signs for orientations, and 39% would like to see more view points and places to relax. A high share of the population of Vienna (43%) prefer to watch forests on TV because of a lack of mobile phone reception, uncomfortable trails and the lack of restaurants. They associate with forests with ticks, wild animals such as bears and foxes, and waldsterben.

3.2 Site specific studies

Several area specific surveys on visitor demand have been conducted in Austria, some of them in a comparable manner. These studies focussed mainly on the region around Vienna, providing site specific information about nature tourism demand, supply and behaviour patterns. For example, for the Vienna Wood, the total number of annual visits is estimated at 21 to 30 million (Pongruber, 1994; www.obf.at). The objectives of other monitoring projects in and around Vienna were to determine the total number of visits and the spatio-temporal distribution of various user groups, socio-demographics and visit-related issues (Arnberger, 2005; Arnberger, 2004; Arnberger & Hinterberger, 2003; Arnberger & Brandenburg, in press; Arnberger & Brandenburg, 2001; Weidinger, 2002; Zemann & Tschernig, 1997). Visitor density in these areas ranged from 50 visitors per year per hectare in an ex-urban conservation area to 10,500 visitors per year per hectare in an inner urban forest park. Two current Man & Biosphere projects focussing on the interaction between wildlife and recreation are investigating the demands of local residents of forest areas in and around Vienna.

Based on long-term monitoring, Brandenburg (2001), Brandenburg and Ploner (2002), Ploner and Brandenburg (2003), and Brandenburg et al. (2004) developed prognostic models of recreation demand as a function of the daily number of forest visitors and external factors such as the weather and the day of the week. Other models focussed on forest user preferences and tolerances of social conditions of trail use (Arnberger & Haider, 2005; Arnberger et al., 2004; Arnberger, 2003).

4 Methods used

4.1 Surveys using interviews in respondents' homes and telephone surveys

In 1975, a study was conducted about the recreation activities and secondary residences of the Viennese population (Hansely 1973, ÖIR, 1975) using interviews. (A detailed description about the methodological approach is not provided; N=ca. 9,481) Bürg et al. (1999) and Pongruber (1994) used telephone interviews (and on-site interviews in the Vienna Wood (total 2,800 sample size)) in Vienna between 1989 and 1998. A randomly selected survey of 1,800 persons, conducted by an interviewer at the home of interviewees, analysed recreational activities of the Viennese population (IFES, 1993).

4.2 Visitor monitoring in urban and suburban forests using visitor counts and on-site interviews

One of the first studies about on-site forest visitors was conducted by Mayer (1969). He randomly selected 1,717 visitors in the Vienna Wood. In 1993, a study about visitors to the Viennese part of the Vienna Wood was undertaken by the Vienna forestry department. On-site interviews and counts by human observers at up to 15 places in the Vienna Wood on up to seven sampling days were conducted; the sample size was 2,941. The questions focussed on visit-related issues, socio-demographics, conflicts, and willingness to pay (Kosz, 1996). The forestry department of Vienna counts visitors to the conservation area 'Lainzer Tiergarten' by human observers at access points on a regular basis (Weidinger, 2002). Mosgöller (2004) asked 202 on-site visitors to the 'Lainzer Tiergarten' about their recreation activities, motivations, crowding perceptions, preferences and interactions with wild pigs. In a hilly forest close to Salzburg, on-site interviews intercepting 1,227 visitors and traffic counts were conducted in a comprehensive study to investigate the role of the area for daily recreation (Herbst et al., 1990).

4.3 Visitor monitoring in urban and suburban forests using video observation and on-site interviews

The Institute of Landscape Development, Recreation and Conservation Planning, at the BOKU - University of Natural Resources and Applied Life Sciences, Vienna, carried out several monitoring studies in a comparative manner using various monitoring methods in parallel (Arnberger & Eder, 2007; Arnberger, 2006; Arnberger, 2005, Arnberger et al., 2005; Arnberger & Brandenburg, 2005; Arnberger, 2003; Arnberger & Hinterberger, 2003; Cessford & Muhar, 2003, Hinterberger et al., 2002; Muhar et al., 2002; Arnberger & Brandenburg, 2001). The methods applied were on-site interviews including route registration, long-term counting via video observation and counts by human observers. In addition, one survey in an urban part of the Vienna Wood used pressure pads. The monitoring in the Viennese part of the Danube Floodplains National Park also included counts and interviews at information points. Arnberger (2003) and Arnberger and Haider (2005) used an image-based choice model to analyse visitor preferences and tolerances for social trail use conditions of an urban forest trail.

4.4 Visitor monitoring in conservation areas using automatic counters, video observation and on-site interviews

In several national parks with extensive forest areas, intense monitoring of recreation usage has been conducted. Investigations on the recreational use of the Lower Austrian part of the National Park Danube Floodplains were conducted between 2000 and 2001 (Arnberger & Brandenburg 2002), using long-term video observation, counts by human observers, counting at parking lots, infra red sensors, on-site interviews including questioning about route choice behaviour, interviews at visitor information points, and registration of visitors taking part at excursions. A study focussed on national park canoeists and their social carrying capacities as well as on the recreational impacts on avifauna (Sterl et al., 2004; Wagner et al. 2005). The authors used video-monitoring, counts of canoeists, and on-site interviews. In his diploma thesis, Loimer (1997) analysed the recreational use of Danube Floodplains national park by visitors. He used on-site interviews and visitor route registrations.

In 2003, the National Park Hohe Tauern commissioned a study to measure the total number of visitors to the national park, using a combination of visitor counts at 65 access points and on selected sample days, as well eight long-term traffic counters at the famous access road to the Großglockner (Lehar, 2004). Visitor counts at the main access points and high-usage trails have been carried out in the Upper Austria National Park Kalkalpen since 1999 (Nationalpark Kalkalpen, 2003). Between 1998 and 2001 a visitor monitoring project was conducted in the Wilderness Area Dürnststein (Muhar & Leditznig 2004), applying a combination of methods which comprised counts at car parks and at road nodes, analyses of hut registers as well as interviews of tourists and key local users. Baumgartner (1993) analysed tourism activities in the National Park Nockberge using traffic data from tollgates of two access roads to the National Park including the registration of car plates to identify the origin of visitors. Another approach was a visitor survey regarding activities during their stay in the region.

4.5 Visitor monitoring in alpine forests using expert based approaches and questionnaires

Georgii and Elmayer (2002) developed a visitor management concept for a sustainable nature-based tourism in the Karwendel region between Austria and Germany using in-depth interviews with local stakeholders, mapping of wildlife habitats and recreational infrastructure, analysis of tourism guides and maps, etc. Wöss (1997) developed a wildlife and forest compatible skiing touring concept for a part of the Alpine area. As part of the study, he distributed a questionnaire among backcountry skiers.

5 Organizations conducting/maintaining recreational inventories

The forest departments of the federal Austrian states (Vienna, Tyrol etc.) and the öbf are organizations conducting/maintaining recreational inventories and databases (www.oebf.at; öbf, 2002; Weidinger, 2002, Arnberger et al. 2005). A nation wide governmental database does not exist, and so far, there is no concrete policy/strategy to develop such an inventory. Other organisations maintaining inventories are the Austrian Alpine Association and some administrations of conservation areas. Several diploma theses focussed on the accessibility to forests and agricul-

tural landscapes (Bauer, 2000; Berger, 2001; Grünmann, 2000; Pinterits 2003; Prechtl 2000). The authors used Geographic Information Systems, based on existing data sources such as land use maps and cadastral maps, and fieldwork (Muhar, 2005). Trail network information exists for these few small areas.

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APPENDIX 1. Publications of national importance

- Arnberger, A., Haider, W. & Brandenburg, C. 2005. Evaluating visitor monitoring techniques: A comparison of counting and video observation data. *Environmental Management*, 36(2): 317–327.
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Belgium

COST E33 WG2 Country Report

Recreation and nature tourism demand, supply and actual usage

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1 Introduction

Belgium is a federal state since 1980. The country comprises three regions Wallonia, Flanders, and the Brussels-Capital Region. There was a single forest policy until 1980 but now policies are more specific to each region. In this report, forest recreation will be presented for each region and some comparisons will be made.

1.1 Forest recreation in the Walloon Region

The Walloon Region is one of the three regions which compose the federal state of Belgium. There are 540,000 ha of forests which are mostly located in the Ardenne region. 47% of these forests are publicly owned (state, region, municipalities, public organisations,...) and the remaining 53% are owned by about 100,000 private owners. One half of the Walloon forest is composed of spruce stands and the other half consists of broadleaves stands (i.e. oak and beech). Spruce plantations are mainly located in the Ardenne region which is the most wooded area in Belgium and also one of the most important tourist regions.

Nature reserves represent an important part of the Walloon forest, including calcareous grasslands, moors and peat bogs (around 10,000 ha of strictly preserved areas). These wild areas are particularly appreciated by the public. In Wallonia, two types of forests have to be distinguished: forests located in the northern part close to big towns and forests in the south which is more rural and where tourism is generally developed.

Forests of the Walloon region are scattered and forest recreation is relatively complex.

Forests cover a third of the Walloon region but this represents only 16 hectares per capita because of the high density of population. People coming from Flanders, Brussels-Capital Region, south of the Netherlands or west of Germany represent most tourists visiting Walloon forests. This is due to the lack of non-urbanized areas in their regions and the good accessibility of the Walloon countryside.

Forest recreation and nature tourism have been developed quite early in Wallonia. In the 19th Century, and until the World War I, some wooded areas were visited for their nature unusual sights like rocks, caves, particular trees or vegetation, and springs. This was the case for forests around the town of Spa from which provides the English term “spa”. The first guide books edited for tourists present these “curiosities” and propose itineraries.

After this “romantic” period, and more precisely after World War II, forest recreation moved to leisure and sport activities with a lot of infrastructures like picnic areas and sport trails being provided (Roisin 1975). This infrastructure was sometimes installed without taking into account ecological impact and the cost of maintenance. Today, education trails and soft infrastructure are privileged and are completely adapted to nature environment.

Some amusement parks have been built in private forests for several decades. More recently, some nature tourism enterprises are being developed and these new sport and leisure activities can cause conflicts (versus other recreationalists or other forest functions). On the other side, a large part of recreationalists are looking for walks where they can appreciate peace and nature.

Since Belgium became a federal state in 1980, forest policy is being developed by the regional Walloon government. A new Walloon Forest Code is being developed, and will contain some precise descriptions about the multifunctional use of the Walloon forest including forest recreation. Up to now, each adaptation of the old Forest Code regarding recreation was focussed on access of forests. A new decree about access in forests has been enacted in 1995 and its aim is to preserve the ecosystem forbids any act which can perturb quiet, disturb animals and damage vegetation.

The decree concerns all roads in forests (paths, tracks,) except those that specify clearly that access is forbidden (in public or, more frequently, in private forests). Access in forests is regulated according to types of roads and types of users (pedestrians, bikers, riders,).

The outlines of this decree are:

- prohibition of all acts which can perturb quiet in forests;
- possibility for the Government to forbid or to limit access to preserve nature or others activities like hunting, fishing, tourism and forest management;
- prohibition for all types of users to circulate out of roads;
- prohibition for bikers, riders, skiers and others non-motorized users to circulate on small paths and out of roads;
- prohibition for motorized users to circulate in forests except on paved or tarred roads;
- delimitation of areas reserved for activities like scouting;
- Permanent or temporary marking out of every type of road.

Other policy documents taking into account forest recreation also exist such as the “Schéma de Développement de l’Espace Régional” (Framework of the development of the regional area) where the importance of outdoor recreation is considered, in the respect of other functions of forests.

Subsidies are also available for public forest owners to setup recreation facilities such as benches, information boards, nature trail.

Forest service has also subscribed an insurance that covers all problems that can occur on open-access roads, even for private roads where public is allowed to circulate.

The accessibility of forests for handicapped people is also studied and the objective is to increase the number of sites with facilities for them.

1.2 Forest recreation in Flanders

The development of the social aspect of woodlands has long been ignored. Until the 1970s when the demand from the public opinion for forest recreation became stronger. The Flemish Region had about 146,000 ha of forests, which is just above 10% of the land cover. 30% of these forests belong to public owners, 70% is owned by about 200,000 private owners. Forests recreation in the Flemish Region is a very complex issue because of the high amount of (very) small forests, mostly private, and the fact that these small forests are very scattered.

Flemish forests are composed of pine (40%) and of broadleaves (i.e. oak and beech). Pine forests are mainly located in the East and North-East of the Flemish Region, which was historically a mining region; the East of Flanders is the most wooded area. Therefore, there is a greater concern about the relation of forests and tourism. Local governments are trying to stimulate nature-based tourism to promote the region. Also the first (and till now only) National Park is located in that area. That National Park opened in March 2006 and will play very important role in nature base tourism in the near future.

We can distinguish two types of forests: forests located around (big) cities, so called urban forests and rural forestry. In the West and North-West of Flanders the forestry area is very small. The existing forests are mainly located around cities. During the last decade a lot of the bigger cities are trying to create a (small) urban forest. The central part of Flanders is a very much urbanised area. Most of the forests are also urban forests (e.g. around Brussels and Leuven). These are public forests. The private forests in this region are very small and scattered. The eastern part is more rural, less urbanised and generally the private forests are a little bigger than elsewhere in the Flemish region. The eastern part of Flanders is the most wooded area with 20% of the land cover. In the West and Northwest of Flanders the land cover of woodlands is less than 5%.

The Flemish Forest Decree dates from 1990 (13/06/1990) and has since then been updated and completed through various Implementation Orders. The purpose of the Flemish Forest Decree is to promote sustainable forest management that entails economic and ecologic values as well as scientific and social values. The regulation of forest recreation is implemented in the Flemish Forest Decree (chapter II, part 2) of 1990. The social value contains not only recreational aspects but also educational aspects. It's describes as the recreational joint-use by several groups.

The outlines of this decree are:

- every forest (public or private) is accessible on the paths for pedestrians (*read: walking/hiking*);
- the access of all forest users (walking with children/families, hiking, cycling, mountain biking, horse riding, forest harvesting, nature lovers,...) is settled by an Implementation Order¹;
- motorised recreation (squads and bikers) is not allowed in the forests;

¹ Implementation Order concerning the accessibility en occasionally use of forests, 22/07/1993.

- cycling, mountain biking and horse riding can be allowed on special terms and should be clearly indicated on the paths;
- in exceptional cases a forest visitor can leave the paths (e.g. in play woods);
- some parts of the forests can also be (temporarily closed) for visitors, for example forest reserve areas;
- private forest owners have the ability of closing their forest for recreation but they do need to follow a strict legal procedure;
- To stimulate the private forest owners the Flemish Government has set up a system of Forest Groups² and they have created a subsidy for accessibility of private forests³.

However, this subsidy is not a great success and hopefully the introduction of Forest Groups will be a positive opportunity to help and support the private forest owners for sustainable forest management. The Forestry Administration (the Agency for Nature and Forest) is currently working on a new and updated Implementation Order concerning the accessibility of occasional use of forests. The expectation is that it will be ready by the summer of 2007.

Forest recreation has become a very important topic in the Flemish Forest policy because there is an indication that more and more of the inhabitants are visiting the forest more than once a year (25% go once a year, 70% go several times/year⁴). To meet the increasing demand of forest recreation the Flemish government is now increasing the forest area. The objective was an extra of 10,000 ha between 1997 and 2007 in the Flemish Structure Plan. This objective will not be reached (afforestation of +/- 4,500 ha; deforestation of 6,000 ha between 1996-2006). In a new Government Policy statement of 2006 the Flemish Government has again stated that the forest area increase is very important and has indicated two very important tools:

- the creation urban forests
- And new play forest for the youth.

To stimulate the recreational aspect of forests the Flemish Government has created a legal way of implementing 'play forest or play zones in forest' for the youth (a play zone is the legal name, play forest is the popular name used by the youth). In general it means that the local Youth Council must give a positive advice, no matter if it is a public or private forest, to create a play zone in a forest. In this Implementation Order there is a subsidy for private forest owners to create these playing zones.

The Forest Administration has also subscribed an insurance that covers physical damage for example when a falling branch injures a hiker. But the appliance of this insurance is limited in many aspects. Consequently not many forest managers depend on it. The accessibility of forests for handicapped people is also a point of interest and the objective is to increase the number of sites with facilities for them. Often, financial aid can be found in other local (provincial, community,) authorities.

² Implementation Order concerning the subsidize of private forestowners and the recognition of Forest Groups, 29/04/1991.

³ Implementation Order concerning the subsidy for managers from public and private forests, 27/06/1993.

⁴ Forest Declaration of the Flemish High Council of Forestry, October 2003, p 54

1.3 Forest recreation in the Brussels-Capital Region

The Brussels-Capital Region has about 2,000 ha of forests, which is just above 10% of the land cover. 98% of these forests belong to public owners, 2% is owned by private owners. Brussels forests comprise beech (74%), oak (16%), coniferous (8%: one third of pine and two thirds of larch). Nature and forest reserves represent a relevant part of the Brussels forest (10%). All wooded areas from the Brussels-Capital Region enjoy a protection status and take part of the Natura2000 network.

All the Brussels forests are located in an urban densely populated area and are particularly appreciated by the public. The Brussels-Capital Region has about 1 million inhabitants and nearly 300,000 people commute daily to work to this Region. Green areas open to the public cover 2,779 ha, 17% of the regional territory, 1,735 ha of which are managed by the Forest Service this represent 60% of green spaces open to the public.

The forest code dated from 1854 has since then been updated and completed through various Implementation Orders. Amongst other the Implementation orders dated 1995 regarding access of forests in the Brussels-Capital Region. Main topics of this implementation order are:

- public has to walk on paths only in natural reserves, forest reserves and protected areas
- Dogs must be kept on leads only in natural reserves, forest reserves and protected areas. Elsewhere, the owners must control them.

When adopting this legislation, only 15% of forests enjoyed these restrictions. The new decree that is being adopted will limit access on 45% of the surface area.

Thanks to the executor decree of this order identification signs will be installed in order to inform users on what is authorized and what is prohibited.

In general, paths are available for different activities, nevertheless bridle and cycle paths are reserved for the exclusive use of these categories of people.

The adoption of this legislation lead to the creation of new jobs: forest supervisors. This staff is charged together with foresters (who have a technique and supervision mission) to supervise forests. At first, their mission was to inform the public on their behaviour in the forest area. Limits of this approach appeared quite rapidly. In July 2000, forest supervisors received, in the framework of the environmental police order dated 1999, the right to establish notice assessments or fines whenever they notice violation of the law they are responsible for (foresters have the same competences as police officers for rules regarding forests).

The management of forests is aimed at the protection of biodiversity and the welcoming of people for recreation. Forest harvesting is not an objective, strictly speaking, but a way to achieve the biodiversity and people access goals.

A participative approach is being developed in order to control the frequentation by youth movements that cause strong pressure on these areas. A participative platform was also set up in order that the different type of users (groups, youth movements ...) that visit forest can meet.

2 Recreation and nature tourism demand, supply and actual usage

2.1 Introduction

The *Walloon* forest policy integrates all functions of forests and the recreational function is thus taken into account. Moreover, in the framework forest certification, which is being developed but which is not a legal requirement for forests owners, the evaluation of forest recreation and its evolution are also taken into account. But despite these policies, at the moment, there is no recreation inventory which allows evaluating continuously impacts of public on the Walloon forests.

Some demand surveys have been carried out in the past and the forest service decided in 2004 to finance a research programme concerning the valuation of the recreational function of Walloon forests⁵. This study collects information about supply and demand relative to forest recreation and makes out a synthesis of the importance of forest recreation, including spatial and temporal variations.

The social value of forestry in *Flanders* has hardly been studied. Scientific research concerning forest recreation is very rare. Until the 70's there was no interest in the social value of forestry. That was the conclusion of a research in 1993 conducted by the University of Ghent. The research indicates that forest recreation is becoming more and more important. However, studying the behaviour of forest recreation is described as very complex. One of the conclusions is that forest recreation is the most important way of daytime-recreation in 1993. At that time this study indicated that there is not sufficient data of the different types of forest recreation and of the effect on the woodlands, and that there is little knowledge concerning the accessibility of private forests. Researchers at that time stated that there were only about 20,000 ha of accessible woodlands, when 55,000 ha was needed (100 m² forest/inhabitant)⁶.

Nowadays there is still no important scientific research concerning forest recreation. The Flemish region does not have good and solid bank of forest recreation data (demand and supply). There is only a small annual survey which allows an evaluation of the frequency of forests visits in Flanders, but there is no research that allows a continuously evaluation of the impact of forest recreation. A new version of the Long Term Plan is still in the pipeline. The Flemish High Council of Forestry indicates in their Forest Declaration (3 October 2003) that further research on forest recreation is needed.

In the Brussels-Capital Region, recreation (including landscape) and nature conservation are the main functions due to the high density of population (living in this region). Several studies have thus been carried out during the last decades. The last demand survey was carried out in 1998 and up to now there is no monitoring system to follow the evolution of forest recreation in the Brussels-Capital Region. Only short term studies have been carried out.

⁵ Research project led by Gembloux Agricultural University and cofinanced by the Walloon Forest Administration

⁶ Long Term Plan of Forestry (Lange Termijn Planning Bosbouw), 1993

2.2 Recreation inventories in the past

2.2.1 Demand

In *Wallonia*, some surveys have been carried out in the past but generally at a local level except for two surveys which focussed on the recreation of Walloon forests in general.

In 1975, a survey was carried out in 11 forests and a total of 682 persons were interviewed about their activities [Doyen, 1978]. Results showed variations between seasons and between days of the week. This survey allowed also to distinguish recreation in rural areas and in the surroundings of towns (activity, time spent,).

In 1996, a phone survey was carried out in order to analyse recreation in forests [Lejeune *et al*, 1997]. 760 persons were interviewed on the frequency of their forest visits, the type of activity or the assessment of facilities.

In 2005 a telephone survey was carried out in order to evaluate the number of people that go to forest to recreate and to describe these recreation activities [Colson, 2006]. A sample of the Walloon and the Brussels-Capital population has been interviewed (1,005 persons) and 45% of them said that they went to forests for recreation activities during the 12 months preceding the survey. This proportion varies between parts of region (it increases according to afforestation rate). Main recreation activities are leisure walks (96%), fauna and flora observations (74%), hiking (58%), rest (56%), biking (53%) and picnic (48%). For 82% of people interviewed, these activities were not organized by associations or clubs. People interviewed had to say if they would agree to pay a subscription every year for their recreation activities in forests and their answer was positive for only 23% of them.

Following the telephone survey carried out in 2005 there was another survey from October 2005 until August 2006. 40 forests of the Walloon region were chosen for this survey (to take into account spatial variations) and forest service was taking care of interviewing visitors. 6 periods were defined (to evaluate seasonal variations) and 4000 persons have been interviewed by the end of the survey [Colson, 2007].

In *Flanders*, some surveys have been carried out in the past but generally at a very local level. A survey that was carried out in the 70's in a single, small village stated that 71% of the inhabitants do visit the nearby forest on a regular base. (Long Term Planning of Forestry, 1993).

The study (Long Term Planning of Forestry, 1993) has built on surveys and research that was conducted in the Netherlands. One of the Dutch surveys in 1977-1978 was organised on a bigger scale. 600 families were interviewed on 18 different occasions about their recreational activities of the past weekend. Forest recreation was systematically the second most important leisure activity. This same survey concluded that people intend to stay within a geographical reach of 13 km between their residence and the recreation area (Long Term Planning of Forestry, 1993).

Results of phone surveys between 2000 and 2006 from the Planning and Statistical Administration shows that visits at woodlands becomes more and more important in the spending of leisure time. These surveys are part of a yearly questionnaire “peilen naar” the ‘social and cultural ver-schuivingen’ with 1,500 inhabitants. One of the questions is “Can you tell me how often you

have done this activity during the last year?”. This is the question to ask people if they visited a woodland or nature reserve.

Visits to woodland and nature (%)

	2006	2005	2004	2003	2002	2001	2000
Never	26,1	24,1	22,9	24,0	18,1	23,8	15,5
1 time/year	10,9	12,4	11,3	12,3	13,0	13,0	12,5
Multiple times/year	44,1	44,8	45,1	42,0	43,6	40,2	44,1
1 time/month	7,4	8,0	8,7	9,1	11,5	9,8	11,9
Multiple times/month	11,5	10,7	12,0	12,6	13,8	13,1	16,0

Source: Studiedienst van de Vlaamse Regering, SCV-survey

Other surveys in between 1990 and 2006 are mostly looking to a certain specified theme (eg. “The impact of outdoor recreation on ecosystems towards an integrated approach” and “The economical value of forestry: a case-study of Heverleebos-Meerdaalwoud”,).

Before 1980, only 3 surveys concerning forest recreation in the “Forêt de Soignes” were carried out in the **Brussels-Capital Region** [Coquelet 1973, Arnal 1982]. Another survey carried out in 1998 in the Brussels part of the “Forêt de Soignes” tried to define public expectations. This survey was composed of three sections:

- Establishing the activity and behaviour of visitors. More than 400 persons answered the questionnaire during July, August and beginning of September 1998;
- Distribution of the different types of visitors through counting at several strategic points (4 per team) at different hours during the day and different days of the week.
- Assess behaviour towards forest, level of satisfaction and expectation as far as developments/improvements are concerned by Brussels-Capital Region inhabitants. This section was carried out by phone interviews in September and October 1998. A total of 2490 people were called and 621 persons answered the questionnaire.

The results of this survey enabled the Forest Service to identify the type of visitor and they found that they are similar to the one from the survey carried out in 1973.

In order to answer the request of the public in term of recreation, the Administration fitted out a range of equipment covering of roads to make them practicable during all the seasons; improvements in the car parks, installation of benches, tables, dustbins, information boards.

2.2.2 Supply:

Concerning recreation activities, the **Walloon** forest service only has data for permanent marked itineraries. The Walloon region has its own forest inventory but for the moment, there is no specific data collected about recreational supply.

In the framework of the research program presented above, a map of all Walloon forests has been established on the basis of the level of recreation activities. The methodology consists in interviewing local managers of the Forest Service who describe forest recreation activities in their region. Types of information taken into account for each forest are: type of owners, type of stands, recreation facilities or not, particular activities like orientating sports or sport trails. All amusement parks located in forests and other nature tourism sites have also been added to

this GIS which will help to identify for example forests where recreation activities could include problems for nature conservation or disturbance for wildlife.

There are no up to date data concerning recreation activities in the *Flemish* forests. The Forest Administration has no specific data collected about recreational supply. There is one exception: a comprehensive map of all play forests has been made and is online on the internet (www.sgiv.be). Everyone can consult the data, but the big problem is the updating of the website. That remains problematic.

In the *Brussels-Capital Region*, a GIS integrates several data regarding recreation supply. Maps which comprise the GIS include:

- Roads with type of surface;
- Localization of infrastructure (information boards, benches, bins,);
- Localization of car parks;
- marked itineraries (walking, jogging,)
- Level of visiting.

2.3 Summary of methods used

2.3.1 Demand:

In *Wallonia*, as presented above, different surveys have been carried out in the past to analyse the demand for recreation activities in forests by the public. Methods used are phone surveys and interviews in forests (face-to-face interview). Various methods are thus used and until now there is no standardized method which is repeated in the time.

Each method (phone surveys or interviews in a sample of forests) has its own interests but the diversity of forests, access and level of visits makes the choice of the best method difficult. Interviewing of local chiefs of the Forest Service seems to be a good method to have a complete overview of Forest recreation in the Walloon region.

As presented above, the *Flemish region* carries out a yearly phone survey on a small scale. Different small surveys have been carried out in the past to analyse the demand for recreation activities in forests by the public, but these data are no longer up to date. Other survey methods used are interviews in forests. But these types of survey fit in scientific research for a very specific topic. Until now it is hard to find a standardized method which is repeated over time and that takes various types of forest (forest diversity) into account.

In the *Brussels-Capital Region*, methods used in surveys carried out up to now are also phone and face-to-face interviews. Given that Soignes/Zonien Forest represent the main part of Brussels forests and because this forest can be clearly delimited, counting can also be carried out to valuate number of visitors in specific parts of the forest or in the whole forest.

2.3.2 Supply:

In *Wallonia*, the analyse of the recreation supply is quite limited up to now but a GIS is being made using data from different administrations and research programs and it could be the best tool to analyse the state of recreation supply. No specific and standardized method exists up to now.

The *Flemish Region* has no tradition of analyzing the recreational supply of forestry and nature.

In the *Brussels-Capital Region*, the recreation supply is analyzed on the basis of the GIS putting together all available data.

2.4 Organizations of conducting/maintaining of inventories and databases

Up to now, in the *Walloon region*, there is no study that gives continuously the evolution of the recreational function of the forests. Only studies on activities practised at a precise time are available. The research programme presented before could permit to define a methodology for a permanent inventory regarding the supply and demand for forest recreation activities.

This is mostly the same for the *Flemish* situation. However, there is one small yearly survey which allows us to indicate the evolution of visits of the forests. This survey does not conduct any research on what kinds of activities visitors are doing, nor for the time they are spending in woodlands and nature. There is also one qualitative study on the historical ecology of the forests in two Flemish provinces (Oost and West-Vlaanderen) describes also certain recreational activities until the early 20th Century. This study was presented in a book 'The forests of Flanders'(Martijn Hermy et al. 1993).

There is no study that is carried out at small regular intervals in *the Brussels-Capital Region*. Studies carried out up to now on forest recreation don't follow the same methodology but this point is being studied to define a monitoring system.

2.5 State of policy of inventories: governmental/institutional decisions

For the time being, no policy decisions have been taken into account to set up an inventory of the recreational function of *Walloon* forests. Forest policies are elaborated on the base of work experience of the forest service and also on the base of claims from users associations and other people concerned with forest and recreation.

This is more or less the same situation for the *Flemish* region. No decisions have yet been taken to set up an inventory of the recreational function of the forests. One of the reasons is the delay of a new Implementation Order concerning the accessibility of occasionally use of forests that was scheduled for 2006. The Flemish government expects to approve this new Implementation Order by the summer of 2007.

The National Park, which only opened in March 2006, plans yearly surveys to assess the numbers of people visiting the site for walking/hiking and cycling by electronic "tellers". Later on the same method will be used for horse-riding. Once a year there will be a survey at the different gates of the National Park to assess the concerns of visitors.

October 2004 was the start of a "dialogue group" in which multiple target groups were represented: public and private forest owners, NGOs, hunters, nature environmental organisations, different recreational groups such as hikers, mountain bikers, horse riders, etc. This institution started officially on a "dialogue day" which was organised at the beginning of the annual familiarisation campaign "week of the forest". The idea was to discuss over the different and very complex use of forest in Flanders and to participate in the realisation of a new Implementation Order concerning

the accessibility and occasional use of forests. This new Implementation Order is expected by the summer of 2007, but the “dialogue group” will have no further input.

Regarding *the Brussels-Capital Region*, there is no policy decision to set up a forest recreation inventory for the time being but a participative platform putting together representatives of all types of users has been created to collect opinions on actual forest management, to discuss about projects to realise (delimiting of free access zones for example) and to inform on forest cuttings.

3 Conclusions

Even if forest recreation is particularly developed in the Walloon region for more than a Century, no monitoring or survey at regular interval have been carrying out up to now. Forest policy makers need data about forest visiting because of conflicts which appear between the forest functions, the different recreation activities and the recreationalists. Pressure on forests becomes greater with the increasing of access and the urbanisation.

For the Walloon region, expected results of the programme COST Action E33 would be on one hand the creation of common methodology for demand and supply analyses, that would be agreed at an international level, and on the other hand the implementation of a tool that could evaluate the impact of the development of recreational activities on the other functions of the forest.

As we see forest recreation becoming more and more important and quality leisure time is developing in Flanders, the urge for more monitoring and surveys at regular interval is definitely needed. Forest policy makers need current and sufficient data to put legislation into practice. At this moment there are already a lot of conflicts between the forest users. There are different ways of recreation activities and all these recreationalists are putting pressure on the forests... The Flemish region expects that one of the results of the COST Action E33 could be the creation of a common methodology for demand and supply analyses on an international level. And to learn about the methodologies which have been successfully used in other European countries.

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APPENDIX 1 Publications of national importance

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Croatia

COST E33 WG2 Country Report

Recreation and nature tourism demand, supply and actual usage

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1 Introduction

1.1 The need for recreation inventories

In Croatia, there are no specific governmental policy, reports and other 'official' documentation, which point out the need for nation wide recreation inventories. That means that recreation in Croatian state owned forests is not among the priorities of Croatian Government. In National forestry policy and strategy (2003), adopted by Government of Republic of Croatia, it is only stated that "...forests are precious recreational and tourist resource..." and that nowadays "there is expectation from the public, especially from urban inhabitants, that forests will be managed, first of all, in order to provide social and environmental benefits to inhabitants, even if this means that forests won't be able to achieve their full wood production potential". In Croatian Forest Law (2005), regarding forest recreation, it is stated that "company defines... also the way of using forest for leisure and recreation by general act" (where company is the company "Hrvatske šume Ltd." Zagreb, which manages state owned forests and forest lands in the Republic of Croatia).

The term recreation (nature based) is used in Nature protection act (the newest version 2005), in which the government defines recreational activities in nature-protected areas. It is stated that recreational and tourist activities are allowed in various categories of nature protection (national parks, nature parks, protected landscapes and forest parks), even some categories are to be used for these activities. The most important paragraph in Nature protection act, regarding recreation and tourism, is §169, in which it is stated that "The Ministry, Counties, The city of Zagreb, towns and municipalities, and legal entities with public authorities have duty to foster public information regarding nature protection through media, lectures and publishing, and have a duty to report about nature values regarding their visiting towards education, recreation and sightseeing."

There are no other kinds of documentation or minor signs possible to show for the need for recreation information.

1.2 Science-based (researchers') analysis of the need for recreation inventories

One of the most comprehensive researches regarding tourist-recreational forest services, which are carried out by one forester in Croatia, is dissertation of Mrs. D. Vuletić (2002) entitled “*Method Of Integral Evaluation Of Tourist And Recreational Forest Services Of Forests On The Pilot Facility - Island Of Korcula*”. This research attempted to give an integral valuation of all non-material forest services and the value of actual tourist recreational forest service supply. This was done by combining several types of methods. The CVM was one of them. The amount of determined value of € 200,000 annually, the existing supply rate can be substantially increased with the current exploitation of accommodation facilities in addition to the interest that the tourists showed for a stay in forests and willingness to pay for the defined activities. 46% of interviewed tourists express their willingness to pay for at least one activity on protection of improvement of forests in surrounding of their accommodation facilities. Further, 44% of interviewed tourists would like to enjoy hiking and 20% cycling, and 51% would like to learn more and see more of nature during their vacation.

Another research carried out by foresters is the one entitled “Sociological Analysis of the Coastal People’s Opinion on Reforestation and Forest Protection Plan” (Biškup & Vondra, 1995). The research was to reveal the social significance of the plan for reforestation and protection of coastal forests. The method uses was a one to one interview with local citizens. There was a unanimous support of the preparation and enforcement of the reforestation of the degraded forest lands. From this project one can draw out some social needs/benefits and preferences like better scenery, protection against erosion and better and healthier environment for local population. On second place people expect some income from that through tourism but not in the near future.

The most comprehensive research regarding the aesthetic and recreational value of Croatian coastal forests was carried out in period from 1995 to 2001. This research conducted by the Institute for Tourism, Zagreb (Horak, Marušić, Weber, 2001). The economic impact of the aesthetic/ambient value of forests view to tourism and local population was estimated for the coastal (Mediterranean) part of Croatia only. Authors used three methods: Contingent Valuation, Hedonic Price and Expert Assessment method. The results show that 68% of tourists were willing to pay for the preservation of forests view. They were willing to pay on average 0.97 US\$ per person per night for preservation of forests view. 72% of local population was willing to pay for the preservation of forests in view. They were willing to pay on average 22 US\$ per person per year for preservation of forests view. Horak et al. (2001) conducted research about forests use by tourists and local population. According to the results from Horak & Marušić 2004, the majority of local population used forests for some activity, and about half of local population thought that the value of property would decrease if the forest in view from the house, but not the forest close to the house, would burn down. Half of tourist population performed some of the activities in forests. Institute for Tourism, Zagreb published a couple of papers and books, regarding the role of forests in view in coastal destination attractiveness (Horak & Marušić, 2004; Marušić et al., 2005; Weber et al., 2002; etc.). Regarding research deficiency on recreation in forests, additional research on use of forest for recreation and on income generated from it, especially for private forests owners, are required. Certainly, development of system of data collecting on use of forests and benefits is required.

2 Recreation inventories in the past

2.1 Demand: type of statistics and other information; the main factors measured

As mentioned, in Croatia, there were only a few surveys/research which refer to recreation in forest and nature based tourism. Therefore we can describe the demand topic with a couple of sentences.

About demand, one can conclude according more-less rough data (number of visits and number of nights if available) obtained from nature protected areas where visitors must pay the entrance (National parks, some natural parks and special nature reserves). Some of N.P.s has a very good practise in offering list of activities and collecting data on visitors. Another source for tracking demand could be database of company “Hrvatske šume Ltd.”, which manages state owned forests. The company provides certain recreational and tourist services such as photo-safari, team building, education in nature and tourist destinations. But the company is not interested very much in recreation and its propaganda. Other information regarding demand for recreation in forests is unknown.

2.2 Supply: the most important databases; the main categories of databases

As mentioned above, the one possible database about forest recreation supply could be the one based on data which posses company “Hrvatske šume Ltd.” about users of their recreational and tourist services. Then, the company “Hrvatske šume Ltd.” has established big GIS based database which consists of different useful data for planning recreation (logging roads, many information about forest compartments/sub compartments/communities etc.). The other important database consists of reports from National parks and other nature protected areas for which entrance fees are required. There is no national database existing, covering the recreation supply.

3 Summary of methods used

3.1 Demand; surveys data, sample sizes, respondents rates etc.

In Croatia, there is no developed methodology for determining forest recreation demand. But, there is methodology developed for evaluating the usefulness of tourist recreational benefits of forests (Krznar et al., 2000), and methodology for evaluating the usefulness of health and landscape benefits of forests (Krznar & Lindic, 1999).

3.2 Supply; type of database; GIS or not

Regarding supply, the situation is slightly better. Vuletic (2002) has used several types of methods for estimating value of actual tourist-recreational forest service supply, and pointed out significant potentials for additional revenue in Croatian forestry through a different approach in evaluating forests and the very process of their utilisation. The most important database for recreation supply in forests is the forest mapping by the State Forest Company (GIS is used).

4 Organizations of conducting/maintaining of inventories and databases

The State Forest Company maintains its database on regular basis.

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Cyprus

COST E33 WG2 Country Report

Recreation and nature tourism demand, supply and actual usage

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1 National policy document of recreation and nature tourism

Nature based tourism and recreation in Cyprus are mainly presented in the strategic plans and policy statements of the two national level leading players, both of which are members of the governmental sector, the Forestry Department and the Cyprus Tourism Organisation.

NGOs related to nature based tourism are insignificant in numbers, strength and membership. Their ability to reflect social demand on recreation based activities varies, however the hunting associations are the strongest and most popular of such organisations.

The most important requirements for recreation and nature based tourism research are presented in the policy statements and strategic/policy plans of the two leading agencies. In addition, the multifunctional role of forests and sustainable forest management in general is supported in other international documents (for example, the Forestry Strategy for the European Union, the Pan-European criteria & indicators for Sustainable Forest Management, the convention on Biological Conservation and the World Heritage Convention). These international/European agreements document the need for recreation and nature based tourism research. The way that the recreational aspect is reflected in policy documents in Cyprus is schematically outlined in the following table 1.

2 National recreation demand surveys

The economic value of forest recreation in Cyprus has previously been investigated. In order to assist the Strategic Review of the Cyprus Forestry Sector (which formed the basis for the Cyprus Forestry Programme prepared by the Forestry Department) a study was undertaken to consider the economic value of forests in Cyprus including forest recreation. This document is referenced as Glafkos Constantinides (1999). FAO Project (TCP/CYP 6712) National Consultant's Report on Economics. Key variables for the evaluation of recreation were number of visitors/tourist bed-nights in the hill resort and the number of day trips by tourists to the hill resorts, and the method used was travel cost method (actual expenditure).

Table 1. Policy documents reflecting recreation

Document	Core sentence/statement	Suggestion of key variables(s)	Suggestion of measurement technique
Forestry Department (1999). National Forest Programme of Cyprus and National Forest Policy Statement	Forest inventory data base should include information related to tourism and recreation (Monitoring of visitors & recreational facilities use)	Recreation supply, Actual use, Preferences, Satisfaction, Socio-demographics, Conflict resolution	GIS/GPS/Corrine maps, Automatic counters/Households surveys/On – site surveys
Forestry Department (1999). National Forest Programme (NFP) of Cyprus and National Forest Policy Statement	The NFP should contribute more effectively to the welfare and economic development of society as a whole.	Economic valuation	Contingent method/Travel cost method
Cyprus Government (1991). The Forest Law	National Forest Parks Regulations – for their protection, administration (fees) and proper use	Actual use, Conflict resolution, congestion	Automatic counters/On – site surveys
Cyprus Tourism Organisation (CTO) (2003). Tourism Development Strategy and Implementation Plan 2003 – 2010	The development of nature tourism projects such as nature trails, routes, environmental centres, cycling routes, camping sites etc ranks high in priority in the planning programmes of the CTO	Nature based tourism infrastructure demanded	Households surveys/Tourists surveys
Cyprus Tourism Organisation (1999). Strategic Plan for Tourism 2000 – 2010	A successful implementation of the strategy presupposes a system of collection, processing, monitoring & evaluation of the marketing information It takes into consideration the present and future needs of tourists	Demand and supply of nature based tourism	Households surveys/Tourists surveys, GIS/GPS/Corrine maps
Rural Development Plan (2004-2006) Measure 3.2	Forestry measures funded under this Regulation are among others, investments to improve the multifunctional role of forests such as development/improvement of picnic/camping sites, visitor centres, viewpoints and nature trails.	Demand and supply of nature based tourism	On site/Households surveys on demand and on site actual usage
Council Regulation (EC) No 1257/1999 of 17th May 1999 Chapter VIII Article 30			Supply survey

3 Site specific visitor surveys

Only one site specific survey has previously been conducted (Kakouris (2002)) The survey gathered information on visitor demographics and satisfaction, and collected the perception of visitors towards new site attractions including a café/ visitor centre. The surveys used questionnaires.

Other specific surveys are conducted from time to time in an effort to find solutions to specific problems, such as specific ecological problems or for fire management precautionary measures

applications. The main methods used are direct observation of recreation use and counting of users.

4 Supply of recreation in Cyprus

- ten (10) National Forest Parks - total area of 15,627 ha (9.98% of the State Forest Land)
- four (4) Nature Reserves - total area of 4 788 ha (2.76% of the State Forest Land)
- 36 Natura 2000 sites accounting for 7.53% of the total area of Cyprus
- 43 picnic sites with capacities for 23,300 persons
- 17 camping sides with capacities for 5,500 persons
- 38 paths, Nature Trails, walking or Cycling paths account for 210 km of trails
- European path (E4) crosses the island, from the East to the West part, with a total length of 440 Km.

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Denmark

COST E33 WG2 Country Report

Recreation and nature tourism demand, supply and actual usage

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1 Introduction

One of the objectives of the Danish National Forest Programme is to develop the forests as a national welfare benefit through their role for popular health and awareness by providing opportunities for nature experience and outdoor recreation. This is particularly important since most Danes live in densely populated areas – 85% live in urban areas. In this context, the state owned forest and nature areas – covering 4% of Denmark – play a key role.

In the Danish National Forest Programme it is clearly stated, that in the coming years, forest-related research will in particular be concentrated on environmental economics and environmental sociology; as well as environment and health, including *outdoor recreation* – which included a new national outdoor recreation survey in 2005. The National Forest Programme also states that the future goal for the National Forest Inventory (NFI) is to cover the recreational function of the forests (Danish Forest and Nature Agency 2002, Skov- og Naturstyrelsen 2002).

The general population's use, preferences and attitudes in regard to the recreational function of the landscape is not a constant (Jensen 1999). Continuing outdoor recreation inventories plays an important role as information for a factual handling of the recreational function of the forest and other landscapes in the future nature-policy and management. In a paper by Jensen and Koch (2004) examples are given on how twenty-five years of forest recreation research in Denmark has influenced the forest policy of the country. The paper concludes that over the past two decades several forestry-related policy issues have been raised via, for example, the Forest Act, the National Forest Programme, the National Afforestation Policy and the evaluation of access regulations. For efforts in all these contexts, the result of basic forest recreation research has played a role in discussions of the social component of various pertinent issues. It is believed that the research has raised the policy discussion to a more enlightened level. The research has also exerted substantial influence, especially on changes to the general aims of the Forest Act (and thereby on forest management in general), as well as on the implementation and priorities of the Danish afforestation programme.

2 Recreation inventories in the past

2.1 Demand

2.1.1 *National household surveys of forest use patterns*

Two national household forest use surveys have been completed in Denmark: Part I from the Forest and Folk project in the mid 1970s (Koch 1978) and the Outdoor Life '95-'98 project in the mid 1990s (Jensen & Koch 1997, Jensen 1999).

Among the many results obtained, it can be concluded that the forests attract a considerably higher percentage of the adult Danish population than other leisure options like cinemas, libraries, and concert halls (both in 1976/77 and 1993/94). During the period between the two surveys the forests have been able to maintain (strengthen) their position as a very significant recreation option for the public despite the fact that leisure options in the period have constantly increased.

In both 1976/77 and 1993/94 about 90% of the adult Danish population spent some time in the forest at least once a year. The average annual number of forest visits per individual has grown by 15% from 1976/77 to 1993/94. This corresponds to a rise between 1976/77 and 1993/94 of just fewer than 25% in the number of visits to the Danish forests by persons between the ages of 15 and 76 – allowing for population growth. It should be emphasised here that one of the great disadvantages of collecting information from questionnaires is the risk of exaggeration. The exaggeration factor is estimated to be in the order 2. The annual number of forest visits in 1993/94 for the adult Danish population, is estimated at some 75 million.

In general, the uses of the forest by the Danish population over the period 1976-1994 has remained relatively stable – although some changes have been detected, including an increase in the number of visits to the forest, and a decrease in the duration of the visits, in transport time, transport distance and group size. Finally, it was recorded that more forest visitors walked or cycled to the forest rather than driving there by car in 1993/94 than in 1976/77.

The connection of forest use with transport time, distance and type leaves the following main conclusion: the shorter the transport time/distance to the forest, the more frequent visits. The shorter the visit to the forest, the fewer participants in the group and the rarer the use of a car to get to the forest – a conclusion which at the same time illustrates the general direction in which Danish forest recreation has developed over the last 20 years. For more results, see Koch (1978), Jensen & Koch (1997), Jensen (1998) and Jensen (1999).

2.1.2 *National household surveys of forest and nature preference*

The Forest and Folk project included the first nation-wide survey of Danish forest preferences (Part IV by Koch & Jensen 1988). As for the national forest use studies, the preference studies were renewed with the launching of the Outdoor Life '95-'98 project (Jensen & Koch 1997, Jensen 1999).

The results from the 1993/94 survey show that it has not been possible to detect major changes in the preferences of the general Danish population over a period of more than 15 years. Minor changes have been found in relation to a few topics, like in preferences as regards natural regen-

eration; large/small unit forestry; the age of the forest stand; the use of herbicides and fertilisers; paths and visitor facilities; the provision of information; and meeting other forest visitors.

It is difficult to sum up these minor trends in Danish forest preferences in a single formulation; but one could say that management measures which are alien to a natural environment are judged more and more negatively by the Danish population. For results and details on the methodology, see Koch & Jensen (1988), Jensen & Koch (1997), and Jensen (1999).

2.1.3 Specific surveys of destination-areas

2.1.3.1 Part II of the Forest and Folk project

What is the geographical variation in the intensity of forest recreational use in each region (county) of Denmark? To answer this question – and to give exact data for the manager of the specific forest area, Part II of the Forest and Folk project was initiated.

The yearly number of visitor hours and visits was estimated for 446 forest areas with a total area of 187,000 ha in 1976/77. Questionnaire results for the car-borne use regarding length of stay, group size, activities, travelling time and distance were obtained as well.

The total number of visitor hours was estimated from the number of car-borne visitor hours, the questionnaire results regarding the car-borne visitors' travelling distance distribution in each forest area, and the relationship between the percentages of the Danish forest visitors who travel to the forest by car at a give travelling distance. The total number visits were estimated from the average length of stay per visit (car-borne/non-car-borne ratios from the national household forest use surveys in Part I from the Forest and Folk project).

The results show a large variation in the intensity of use. In most counties it is found that some forests are used up to about a thousand times more intensively than others. In Koch (1980) detailed descriptions of the results are given.

2.1.3.2 The Outdoor Life '95-'98 project

As for the national use- and preference-surveys, also a need for updating the results on the local level was found. Due to this, the Outdoor Life '95-'98 project was initiated and a new data collection on the specific areas was accomplished in 1996/97. Instead of 446 areas divided into 1419 sub-areas in 1976/77, the surveyed area in 1996/97 consisted of 592 forest/nature areas (of 2159 sub-areas), with an area of approx. 201,000 ha (174,000 ha forests).

The comparison between the two surveys shows the same tendency as in the national household surveys of the general public: An increase in the number of visits. The geographical variation in use intensity as described for the 1976/77 survey is more or less retained. For more detailed results, see Jensen (2003).

2.1.4 Permanent automatic counting stations

2.1.4.1 Part III of the Forest and Folk project

Four permanent counting stations have been in use since 1976. These registrations have a two-fold aim: To form the basis for the specific area surveys described above (Part II of the Forest

and Folk project), and to describe the time-dependent variation and the trends in the extent of the recreational use of selected locations. The following variables can be determined:

- Number of cars present at an arbitrary time (difference between the summed up number of entering and leaving cars)
- Number of car visitor hours (with round-error depending on registration-interval)
- Number of car visits (directly from the separate in- and outgoing traffic)
- Mean length of stay per car visit (estimated from two last-mentioned variables).

See Koch (1984) for detailed results of time dependent variations and trends in the car-borne recreational use of the four selected forest areas.

2.1 Supply

In general the Danish forest areas in public ownership are open for recreational activities all year around, day and night, and outside roads and tracks. When the forest is in private ownership, the access for recreational activities is restricted to daytime and only on forest roads and tracks. When private forests are less than 5 ha, then additional restrictions (closing for public access) apply.

The most important database regarding the supply of the different forest categories is the National Forest Inventory (Larsen & Johannsen, 2002). Besides this, a number of databases regarding land-classification and recreational facilities exist on various levels and precision (e.g. on county and forest district level). These databases need further exploration to determine their relevance in a supply perspective.

3 Summary of methods used

3.1 Demand

3.1.1 *Method of national household surveys of forest use patterns*

Data were gathered in two national postal questionnaire-based surveys in 1976/77 and 1993/94, each involving some 3,000 people representing the adult Danish population. For representative purposes the mailing of the questionnaires was distributed over a period of one year (one portion each month).

The Danish population is required to register births, marriages, deaths, changes of address, etc. This provides a very reliable sampling frame (the Civil Registration System, Ministry of the Interior) from which a systematic gross random sample consisting of respectively 3,087 and 2,916 persons has been drawn in 1976 and 1993, representing the adult Danish population, 15-76 years. The samples (and the collected responses) were checked to ensure that they were representative of age, gender and county, etc. No significant differences between the samples and the defined population were identified.

The following measures were taken to increase the response rate: (1) care in the design of the visual appeal of the questionnaire package; (2) care in the design of the verbal prompts; (3) a stamped, addressed reply envelope; (4) a relatively brief, simple questionnaire; (5) a potential personal gain for respondents (lottery – only in the 1976/77 survey); (6) the use of up to three

reminders, mailed after 2, 3 and 5 weeks. The response percentage was 91.4% for the 1976/77-survey and 83.7% for the 1993/94-survey. For more details on the methodology, see Koch (1978), Jensen & Koch (1997), Jensen (1998) and Jensen (1999).

3.1.2 Method of national household surveys of forest and nature preference

Data were gathered in two national interview-based surveys in 1977/78 and 1993/94, each involving some 3,000 people representing the adult Danish population (15-77 years old). Contact was established by means of mailed questionnaires followed by up to three reminders, and several measures were taken to increase the response rate (see above). The response percentage was 89.4% and 83.7% respectively. The samples and responses were controlled for representatively as described above. The questionnaires were distributed over a period of one year, since the season is assumed to be a factor that influences forest preferences. In choosing the topics to be assessed by the selected persons, we attached considerable importance to the following factors: (1) whether the topic was likely to have impact on the experience of the forest visitor; (2) whether it had any commercial or socio-economic significance; and/or (3) whether the conditions described could be regulated by the forest manager.

In the Experimental Method, respondents assess black-and-white photos which taken in pairs or groups only differ by a single factor. In addition, a series of less ambiguous subjects, only described verbally, were assessed. This method, which was developed by Koch (1977a and 1977b), is distinctive in its experimental design and its ability to cover many survey topics. (An additional method – The Scenic Beauty Estimation Method – was modified by Koch (1977b) and used in the 1977/78 survey as well. 189 respondents assessed 80 colour slides representing broadleaved forest, coniferous forest, the countryside and facilities for forest recreation).

A total of 52 black-and-white photos were assessed in the 1977/78 survey and 64 in the 1993/94 survey. The reader may refer to Jensen & Koch (1997), where the photos are reproduced in the same size and quality as those mailed with the questionnaires. When the photos were taken, great care was taken to ensure that photos in a given “block” appeared as uniform as possible. In addition a total of 100 verbal stimuli were to be assessed in both surveys. They were printed in green, on yellow cards of the same size as the black-and-white photos (98 x 134 mm). To enable cross-checking certain survey topics were assessed on the basis of both a photo and a verbal stimulus.

The following techniques were used to elicit the population’s preferences:

Black-and-white photo questions: Of the total of 52/64 black-and-white photos of different forest environments, 7 photos were randomly selected for each interviewee and appended to the questionnaire in a red envelope. Guided by explanations printed on the questionnaire and envelope, interviewees were asked to rank the 7 photos according to the criterion “Which woodland environment do you prefer to visit?”.

Verbal stimuli questions: Of the total of 100 verbal stimuli, 7 cards with verbal stimuli were randomly selected for each interviewee and appended to the questionnaire in a blue envelope. The interviewees were asked to rank the text on the 7 cards according to the criterion “What do you prefer to meet in the woods?”

Thus the survey produced a series of independent rankings, by a representative sample of the population, of a number of different topics (presented as black-and-white photos and/or ver-

bal stimuli), in a number of different, randomly selected combinations. On average, each photo was ranked about 335 and 260 times and each verbal stimulus about 175 and 165 times by the respondents in the two surveys respectively. And thus a basis was obtained for comparing the internal ranking of the photos and the verbal stimuli.

For more details on the methodology see e.g. Koch & Jensen (1988), Jensen & Koch (1997) and Jensen (1999).

3.1.3 Method of specific surveys of destination-areas

3.1.3.1 Part II of the Forest and Folk project

The yearly number of visitor hours and visits was estimated for 446 forest areas with a total area of 187,000 ha in 1976/77. Questionnaire results for the car-borne use regarding length of stay, group size, activities, travelling time and distance were obtained as well. The basic data collection consisted of 28,652 instantaneous, manual counts of parked cars and the delivering of 44,846 questionnaires. The response percentage for the questionnaires was 53.7% (impossible to use follow-ups). Nearly all state forests and many private forest properties participated voluntarily in the basic data collection. It is assumed that the more intensively used forests are over-represented in the investigation. Detailed instructions for the fieldwork were elaborated. The recording was carried out at 20 stratified randomly selected times and at 2 subjectively selected times at peak use. The stratification took the seasonally, weekly and daily variation into account.

Different models for the relationship between the instantaneous counts on each individual area and permanent automatic recording have been considered. (See the description of the permanent counting stations below). The rather simple multiple linear regression model was chosen. If the regression estimates was not significant, or if the regression estimates deviates significantly from the sample estimate, the sample estimate for the area in question has been used (based only on the 20 registrations at randomly selected times). Calculating the questionnaire results is only possible by sample estimates.

In Koch (1980) detailed descriptions of the different methodological aspects are presented.

3.1.3.2 The Outdoor Life '95-'98 project

The data collection in the Outdoor Live '95-'98 project follows the same outline as described above for Part II in the Forest and Folk project in 1976/77, although some extensions and limitations was introduced:

Other nature areas than forests were included (e.g. beach areas). Instead of 446 areas divided into 1419 sub-areas in 1976/77, the surveyed area in 1996/97 consisted of 592 forest/nature areas (of 2159 sub-areas), with an area of approx. 201,000 ha (174,000 ha forests). A total of 85,673 questionnaires were delivered and 46.7% was returned. The questionnaire-based survey was extended to include e.g. aspects of crowding as well as use of and preferences for a number of visitor facilities.

Due to economic constraints regression estimates were not performed – only sample estimates (Jensen 2003).

3.1.4 Method of permanent automatic car-counting stations

3.1.4.1 Part III of the Forest and Folk project

Four permanent counting stations have been in use since 1976. The counting stations operate according to the "net count procedure", i.e. all cars entering and leaving an area (which is only served by a single road for cars) are counted *individually*, and the results are recorded at the same time and very frequently (every 15 minutes).

The stations are built with two inductive-loop (magnetic-loop) detectors which makes it possible to determine the direction of the car. The stations are "invisible", as the loop (metal cable) is underground. The power-supply, data-collection and -storing equipment is mounted in ordinary road authority cabinets.

The counting stations are still operating. The practical work of inspection and collecting the data is carried out in co-operation with the Danish Road Directorate. See Koch (1984) for a detailed description of the methodology and discussion of counting errors.

3.2 Supply

As mentioned in section 3.2.2, the most important database regarding the supply of forest recreation opportunities is the National Forest Inventory. The publication of the statistics from year 2000 in Larsen & Johannsen (2002) is the last based on questionnaires mailed to the forest owners. The data collection will in the future be based on a field sampling methodology.

The Forest Inventory and Monitoring (FIM) is the national forest monitoring programme in Denmark. FIM integrates a number of large surveys: the NFI - National Forest Inventory for Denmark, ForestFocus - the EU forest ecosystem monitoring programme, the UN/ECE programme on monitoring effects of air pollution - and eventually a national monitoring of recreational supply aspects. The NFI has a flexible design, which makes it possible to increase the sampling intensity. A co-ordinated grid-based sampling and monitoring scheme allows for data exchange and reuse between the different activities and the use of GIS plays an important role in this context.

4 Organizations of conducting/maintaining of inventories and databases

Forest & Landscape Denmark are responsible for monitoring the forests in Denmark. The institution collects forest data (incl. demand as well as supply in relation to outdoor recreation) and arrange for their further analysis and quality control. Forest monitoring supplies information to national as well as international environment and forest statistics and disseminates knowledge about the forests' state and development.

Besides this, a number of different institutions are believed to collect data with some relevance for recreational purposes. Further exploration is needed to determine their relevance.

5 State of policy of inventories

As indicated in section 3.1 there is awareness about the importance of having a continuous and up-to-date inventory programme running. Just recently *Forest & Landscape Denmark* has received funding from the Danish Forest and Nature Agency and the Danish Outdoor Council to carry out a project entitled “Outdoor recreation statistics for the future” - a project on development of strategies and methodologies for monitoring supply and demand of outdoor recreation in the future.

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APPENDIX 1. Publications of national importance

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Finland

COST E33 WG2 Country Report

Recreation and nature tourism demand, supply and actual usage

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1 Introduction

In Finland, because the public has a right of access to all undeveloped land (everyman's rights), it is important that all natural resources also play a role in providing recreation opportunities. Information on recreation is required for developing and planning of forest resources, water resources and land use in general. It is equally important to understand the demand for both close-to-home recreation opportunities and natural resource-based recreation opportunities further away from home.

The public sector in Finland utilises information about recreation resources and their use in investment allocation decisions. The state agencies provide recreation services, which are financed from a central government budget. The State also finances the production of information required for the management of land and facilities (research, development programs, handbooks etc.).

Municipalities also play a major role in providing recreation services. Public sector municipalities are responsible for the core monetary recreation spend. When organising recreation areas and trails, which expand over municipality borders, it is important that there is good co-operation between municipalities. The government supports communities by providing money for large development programs such as multicomunity recreation areas, trails, sport facilities and recreation centers. In addition, because comprehensive planning of natural resources is undertaken regionally, information about the recreational use of resources is required regionally too. Furthermore, when society seeks ways to decrease the costs of health care and social benefits (and to enhance the more healthy life styles) information about the social and health related benefits of recreation are essential.

The demand for nature-based tourism is expected to grow. Nature-based tourism can be a great contributor to the economy of rural communities. Traditionally, in many rural communities, the chief income source has been agriculture, but now other sources of income also sought. Communities are may now attempt to combine different types of plans on a village and/or community

level, such as forestry plans, landscape and land use plans, tourism plans and other types of business development programs. Nation wide recreation information supports both these planning processes and the implementation of programs. In addition, nature tourism entrepreneurs may benefit from this nation wide recreation information and have a particular interest in the domestic demand for their services.

Moreover, Finland has a Land Use and Building Act which aims, among other things, to organise land use and construction to create the basis for high quality residential environments, and to promote ecologically, economically, socially and culturally sustainable development. Existing information on the demand and supply of recreation is a useful tool in throughout various levels of this land use planning and management process.

The amount of public investments has become remarkable in recent years, but there is also now a pressure to be more cost effective when providing basic recreation services. Good databases provide important evidence and help to direct the policy on the development of new recreation services. An inventory of outdoor recreation services is required by many different public agencies such as the government administration, local authorities, researchers, planners, associations of recreational participants and interest groups. Although there was an obvious need for a large-scale nationwide outdoor recreation demand and supply assessment, Finland did not undertake a comprehensive population study of outdoor recreation participation until 2000.

2 Recreation inventories in the past

2.1 General description

The first NATIONAL OUTDOOR RECREATION DEMAND AND SUPPLY ASSESSMENT-project (LVVI) was conducted in 1997-2001 in Finland. The aim of the project was to assess nationwide outdoor recreation demand and supply in Finland. The project was established in order to both collect statistics on demand for recreation, participation in outdoor activities and behavior patterns, and to develop databases of the supply of recreation opportunities and the quality of services. The information in the demand inventories was expected to be useful for planning of recreation services and in directing outdoor recreation policy at all levels of public administration, both on a governmental and municipality level.

The main population survey was conducted by Finnish Forest Research Institute, University of Helsinki and Statistics Finland. The recreation resource inventories on state land and in municipalities were completed by the Finnish Environment Institute (SYKE) and University of Jyväskylä. The project was financed by the Ministry of Agriculture and Forestry, Ministry of Environment, Ministry of Education, Ministry of Business and Industry, Ministry of Social Affairs and by the research institutes and universities involved. The total costs of the project were about one million euros (over five years).

During this project, the US Forest Service were consulted during the planning of the demand studies, and Alterra in the Netherlands were consulted regarding the planning of the supply studies. The primary purpose of international co-operation on the LVVI projects were to:

1. Share technologies, experiences and data toward mutually strengthening long-term assessments of recreation demand in both Finland and other countries.

2. Establish a long-term demand assessment process, instruments, and sampling strategy for Finland by drawing on the successes and failures in the international experience and cooperate in monitoring its implementation and progress.
3. Build closer, on-going collaborative ties between outdoor recreation assessment units in Finland and other countries and to explore opportunities for joint work beyond recreation demand assessment.

2.2 Demand: type of statistics and other information

The results of the first national outdoor recreation demand and supply assessment were reported in Sievänen, T. (ed.) 2001. *Luonnon virkistyskäyttö 2000. Summary: Outdoor recreation 2000.* Metsäntutkimuslaitoksen tiedonantoja 802. (See also: www.metla.fi/metinfo/monikaytto/lvvi)

The report describes how Finnish people recreate outdoors, their participation in different (90) outdoor activities by population groups and by regions and provides information regarding close to home recreation and nature trips. There is an overview of recreation opportunities, e.g. recreation areas, trails and recreation services in Finland. In addition, the report also provides information on recreation, fishing, welfare impacts, attitudes toward fees and payments, demand for nature-based tourism and visitor surveys methods. The report (which includes an English summary and all tables and figures also provided in English) presents 62 tables of OUTDOOR RECREATION STATISTICS. Statistics on outdoor recreation include the following tables:

- 1) Participation in outdoor recreation by population groups;
- 2) Participation in outdoor activities and frequency of participation;
- 3) Time used for outdoor recreation;
- 4) Resources used for recreation;
- 5) Skills for participation;
- 6) Day trips (the last trip information) by trip characteristics or by population groups;
- 7) Nature trips (last trip information) by trip characteristics or by population groups;
- 8) Distribution of visits in different types of areas (state land, municipality land, private land).

The project has also produced regional outdoor recreation statistics, see in www.metla.fi/metinfo/monikaytto/lvvi. In these statistics, Finland is divided into 15 regions, and the statistics follow a similar model as the national statistics (with a few exceptions).

2.3 On- Site Visitor Studies

Comparable and reliable information on the number of visits and trends is important for the management of both individual protected areas and recreational areas. There is a need to collect data on the numbers of visits and recreation days, and on visitor information at the recreational areas, and of trails and other services. When common methods to measure recreational use and visits are provided, comparable statistics can be gathered from across the whole country. In Finland, standardised methods for visitor monitoring were developed via co-operation between the Forest Research Institute and the University of Helsinki together with the Forest and Park Service. The standardised methodology ensures more accurate and useful visitor information is provided about the recreation areas and services.

Two projects have been conducted in order to improve the methods used to collect and analyse visitor information in recreational areas. The visitor survey standardisation project developed a standardised questionnaire for collecting visitor information. Along with visitor surveys, systematic visitor counts have been obtained using electronic trail and traffic counters, and mechanical counters in several protected areas and recreational areas.

The implementation of standardised visitor surveys and counts are mainly carried out by Metsähallitus (Forest and Park Service), which manages the majority of the state-owned protected areas and national hiking areas in Finland. All together about 70 different visitor surveys have been conducted in state-owned areas in the last few years. Metsähallitus has more than 100 counters in use with which systematic counts are carried out, primarily upon state land in Southern Finland. The results of the visitor surveys and counts have been of immediate use in the management and planning of the areas in question. Visitor surveys are reported now as separate documents in each park, but a project to develop a nation wide database of visitor information on state lands is under construction.

2.4 Supply: the most important databases

Work on building a GIS database on outdoor recreation opportunities in Finland started in the Finnish Environment Institute (SYKE) during the National Outdoor Recreation Demand and Supply Assessment (LVVI) study (1997-2000). The first working database had three main categories: recreation areas (polygons), trails (lines) and services (points). The aim was to develop a nationwide, continuously updated information system on recreational opportunities using GIS. Subsequent work has continued under the supervision of the Ministry of Environment and the Ministry of Education as the VIRGIS project.

The VIRGIS project has focused largely on better ways to manage GIS data technically, and to make it more suitable for a wide range of needs and uses. Special focus has been placed on the updating of the data. The VIRGIS database will be a useful tool for collecting and updating the data, as well as for its distribution. However, the primary benefit of the database will be the ability to analyse it alongside other GIS data, e.g. accessibility (population and its distribution, settled areas, transportation), environment (protected areas, water systems etc.), land use (planning/realization), forestry etc. It will therefore provide a very efficient tool for indicator building and for follow-up studies.

The National Sport Databank in Finland provides some useful information about recreation areas, trails and services (see www.sport.jyu.fi.) After the VIRGIS project has been completed, the information will be greater in quantity and enhanced in quality.

The supply data can be further analysed in order to produce indicators and criteria for the quality of recreation areas, to define categories of recreation areas, and also to grade areas according to the categories developed. The supply assessment based on this data also provides valuable information about the implementation of recreation plans within a variety of regional planning processes. In addition, nature reserves and other areas, within which conflicts between recreation and nature conservation are observed, can be studied more thoroughly.

VIRGIS data are valuable for driving outdoor recreation policy as well as for reporting international statistics. In addition, the data from VIRGIS can be used for decision making (especially

concerning financial support) and for land use planning and environmental impact assessment (EIA) procedures.

2.5 Other studies and inventories related to nature-based recreation

Statistics Finland has conducted three Leisure surveys, in 1981, 1991 and 2003. In those studies, participation in some outdoor activities has been measured. The study reports offer statistics on participation and frequency of use by different population groups.

Statistics Finland collects information on travelling undertaken by the Finnish people both annually and on a monthly basis. These studies, which commenced in 1995, provide information on travelling for leisure purposes, including trips to summer cottages.

Statistics Finland together with the Finnish Tourist Board collects travel information on foreign visitors to Finland. That study offers information on the motives for travelling, including participation in outdoor activities.

On-site visitor studies have occasionally been made on municipality recreation areas, and also on state-owned areas outwith the visitor studies undertaken using the standardized method.

3 Summary of methods used

3.1 Methods used for demand inventories

3.1.1 LVVI Population survey

The demand study data was collected alongside a national population labour survey. The LVVI study surveyed 12,000 Finnish adults aged 15 to 74, around every second month between August 1998 and July 2000, i.e. around 1,000 per month. This ensured that all seasons were well represented in the sample, and that some potential errors caused by the short term memories of respondents were lessened.

The first set of data was collected with computer assisted telephone interviews (CATI). Most of the questions on the telephone interview were about participation in 90 outdoor recreation activities. Telephone respondents were asked about their willingness to participate in a follow-up mail survey. The mail survey was sent to those respondents who were willing to respond and who had participated in outdoor recreation activities during previous 12 months. The mail survey included questions about the last close-to-home recreation visit, last nature trip, amount of money and time spent on recreation, use of recreation areas owned by different owner groups and socioeconomic variables. In addition, in the mail survey there was a change in theme study, within which the questions were about valuing state areas, recreation fishing and the health effects of recreation or nature tourism.

The response rate to telephone survey was 84%. In the mail survey the response rate was 66% of those who in the telephone survey has indicated a willingness to respond to the mail survey. This makes an overall response rate of 44% from the original sample. There were some minor differences in background variables between the respondents and the overall population, which were taken into account in the analysis by weighting the data.

Data was collected by Statistics Finland. The basic analysis was completed by a group of researchers from Finnish Forest Research Institute and University of Helsinki. In addition, some other researchers participated in the project and used the data for the thematic studies.

3.1.2 *On-site visitor monitoring*

3.1.2.1 Visitor surveys

Visitor surveys are carried out using questionnaires and interviews among the visitors. Metsähalitus usually uses guided questionnaires. In most cases, it is recommended that some 300–500 questionnaires be collected during the survey period (summer, winter). Sampling arrangements and the size of the sample vary considerably, depending on the nature of the area and the resources (e.g. working time) available. The randomness of the sample is ensured by distributing the collection of the questionnaires over the entire data collection period (season). Questionnaires are also collected at different entrance points to the area, so that at least the most important peak areas of visitor flows are covered. It is recommended that visitor surveys should be repeated about every 5 years, depending on the area.

Only the most relevant issues that are most often of interest in visitor surveys are included in the four-page questionnaire. The standardised factors measured by visitor surveys are information about visitor profiles, activities, use of the area, visitor satisfaction, duration of visits and expenditure during visits. Visitor profile information consists of socio-economic data such as age, gender, education and place of residency. In addition, visitors are asked whether they have visited the area before and if so, when they visited the area for the first time. The questionnaire also asks the ages of the oldest and youngest members of the group and whether any visitors are disabled. The standard questions form the basis of the questionnaire in all visitor surveys, but there is also room for questions specific to the local areas.

Outdoor activities and other forms of recreational use are inventoried, mainly for the purpose of ensuring there are enough services and accommodation for visitors to the area. Visitor satisfaction is measured using an indicator that consists of almost 20 different factors. Visitors are also asked to assess factors that may disturb their recreation experiences. Questions relating to the individual areas may cover specifically local issues, such as traffic arrangements and the need to increase or decrease the amount of services.

Recommendations for data collection are given to park managers and self-conducted questionnaires are recommended. To encourage the personnel in local recreation areas to conduct visitor surveys independently, a visitor survey manual, a Microsoft Excel application for computing descriptive results and a reporting model in order are all provided.

3.1.2.2 Visitor counting

Electronic and mechanical counters of different kinds count the number of visits. In addition to these, trail logs, in which the visitor can write comments are still useful tools for estimating the number of visits. Choice of the counter model and type is influenced by the characteristics of the site and the amount and quality of the information needed. The features of the installation site to be considered include the width of the passage, the possibilities for reading, monitoring and installing the counter, and the electricity supply available. An important consideration is whether the information is needed all the year round or not. The sites for installing visitor counters are chosen so that they provide the most representative picture of the movements of visitors in the

area. In selecting the site, the focus of visitor traffic to the area must first be identified by using the best available local knowledge of personnel.

The electronic counters usually comprise infrared photocell sensors, reflectors, a power source and a counter with delay circuits and a housing. The mechanical counters used are generally Mechanical Stroke Counters, which are built into the structure of a door or its lock. One of the most promising future developments for visitor counts is an electronic counter based on a data logger and wireless gsm data transfer technology; the counter is equipped with a gsm telephone for the logger's data transfer. Counters of this kind are currently being tested at Metsähallitus and the technology will be further developed in co-operation with Teknovisiot Oy (Teknovisiot Oy, see www.teknovisio.com). A qualitative and technical correction coefficient is defined for each counter separately because the counters may give erroneous readings.

3.2 Methods used for supply inventories

A GIS database focusing on outdoor recreation opportunities (VIRGIS) is under construction at the Finnish Environment Institute (SYKE). The data is produced in cooperation with Metsähallitus and the University of Jyväskylä. The database will be completed by the end of 2006. The VIRGIS project is an effort to harmonize a wide variety of data collected in many databases, most of which are built for administrative and management purposes. Therefore, the data must be carefully checked and rebuilt (e.g. classification, GIS management etc.).

The raw data comes from various sources. Municipalities and recreation area associations collect and enter the attribute data and digitize the geographical data to the National Sport Databank of Finland (owned by the University of Jyväskylä). It is an information system with a WWW-interface that includes information about sport facilities in Finland. The Natural Heritage Services of Metsähallitus produces GIS data on state owned resources in their own databases for their own needs and uses. Regional Environment Centers (13) also collect and store information on outdoor recreation resources. All these data are being used to compile an extensive, national GIS database.

VIRGIS is a vector-based GIS database built in ArcGis (currently in ArcGis personal geodatabase, in the future in ArcSDE database), its accuracy corresponds to a scale of 1:20 000. Attribute data is stored in an SQL-Server database and the data will be available for public use.

The VIRGIS database consists of three main categories: recreation areas (polygons), trails (lines) and recreation services (points). A new, common nationwide classification for a range of types is created in VIRGIS. Raw data from various sources is reclassified and corrected to fit VIRGIS and to form a comparable dataset covering whole Finland.

4 Organizations of conducting inventories and maintaining databases

In Finland, no legislation exists regarding monitoring outdoor recreation, however several governmental documents have taken the monitoring issues into their agenda, and thus there is a lot of support and demand for a continuous recreation monitoring processes. Nonetheless, whether the

monitoring is conducted, and by which agencies, is still very much up to the current political and financing decisions.

Presently, the Finnish Forest Research Institute is the co-ordinator and takes the lead on the national demand inventories, and Metsähallitus runs the visitor monitoring on state lands.

The Finnish Environment Institute (SYKE) works in cooperation with the University of Jyväskylä and Metsähallitus under the supervision of the Ministry of Environment and the Ministry of Education on the VIRGIS project. The project is due to complete at the end of 2006, at which point the database will be ready, and the basic data will be stored. SYKE and its partners plan to update the database thereafter on an ongoing basis.

5 State of policy of inventories

There are some government documents regarding the need to develop and conduct recreation monitoring in Finland. The Programme for Developing Recreation in the Wild and Nature Tourism was completed in February 2002. The task number 27 includes specific mention of the aim to develop recreation inventories, monitoring, assessments and research. The Ministry of Environment is primarily responsible for implementing this program. The Ministry of Agriculture and Forestry prepared a program to develop recreation services on state lands in 1996, and Metsähallitus is now preparing a more detailed program and plan for the development of recreation services on state lands.

On a regional level, there are regional land use plans and programs (maakuntakaava, which cover the whole country) which highlight the potential future needs for recreation areas, trail and services. On municipality level, the state of planning for recreation varies to great extent. Some municipalities have many plans and programs for recreation services, but some smaller, rural municipalities may have very little planning for recreation. Very few municipalities have research on the use of their recreation areas or services and even less concerning the needs of their inhabitants, visitors to recreation areas or users of recreation services.

APPENDIX 1 PUBLICATIONS OF NATIONAL IMPORTANCE

- Erkkonen, J. ja Sievänen, T. 2001. Kävijätutkimusopas. [Visitor Survey Handbook] Metsähallituksen julkaisuja [Publications of Metsähallitus] Sarja B No 62. 63 pp. + Appendix.
- Erkkonen, J. & Sievänen, T. 2002. **Standardisation of visitor surveys - Experiences from Finland.** In: Arnberger, A., Brandenburg, C. & Muhar, A. (eds.). *Monitoring and Management of Visitor Flows in Recreational and Protected Areas*, January 30-February 2, 2002, Vienna Austria. MMV-Conference proceedings. Bodenkultur University Vienna. p. 252–257.
- Horne, P., Sievänen, T., Alenius, V., Iisalo, H. & Friman, T. 1998. Kävijälaskentaopas [Visitor counting handbook]. Metsähallituksen julkaisuja [Publications of Metsähallitus] Sarja B No 45.
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Sievänen, T. (toim.) 2001. Luonnon virkistyskäyttö 2000. Summary: Outdoor recreation 2000.
Metsäntutkimuslaitoksen tiedonantoja 802. 204 pp. + Appendix

The Outdoor Recreation Statistics. Available at <http://www.metla.fi/metinfo/monikaytto/lvvi/index-en.htm>

The Outdoor Recreation Supply Information. Available at: www.sport.jyu.fi

France

COST E33 WG2 Country Report

Recreation and nature tourism demand, supply and actual usage

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1 Introduction

In France, there isn't really any official documentation that point out the need for forest recreation inventories. Even though, two recent experiences may be seen as positive signs. Since 1994, France has started the implementation of Pan European indicators for sustainable forest management. Two reports have been published in 1995 and 2000, and a new one is under construction (forthcoming 2005).

In 2001, French ministry of agriculture and ministry of environment asked the *Office National des Forêts* (French National Forestry Office) to complete a "National Heritage Assessment" of state forests. Recreational aspects are integrated in the valuation process and some indicators have been proposed in that sense: a typology of state forests connected with recreational aspects and an inventory of main recreation facilities in a sample of state forests. The first report is expected in 2006 this is supposed to be repeated in the future.

On a more general basis, recreation value of forests has been reinforced in Forestry Law (2001) as well as outdoor recreation in the Sports Law (2004). Nonetheless, it still hard to say whether this will be an incentive for recreation monitoring.

In the research field, no consensus exists either. In France, ECOFOR has recently pointed out the need for forest observation and organization of the existing collecting (ECOFOR 2001). An inventory of about 40 collecting systems is proposed, both at national and local level, but very little attention has been put on recreation.

The need for recreation inventory could then arise from works on national accounting. In the 80's, a first attempt was made for integrating natural assets (including forests) in national accounting, linking environment and economics (INSEE 1986). More recently, this research has been reactivated in order to elaborate a European Framework for Integrated Environmental and Economic Accounting for Forests (IEEAF), which has been proposed by the members of the Eurostat Task Force on Forest Accounting (Eurostat 2002, Peyron *et al.* 2002).

Nonetheless, it's obvious that studies have grown in number since the early 90's after a first important period of studies on forest recreation in the end of the 60's and beginning of the 70's¹. Most of them are related to demand and public forests. Economic studies appeared in the late 90's. In parallel, works on outdoor recreation also appeared in the early 90's (Bessy et Mouton 2004).

2 Recreation inventories in the past

As there are no dedicated data bases on forest recreation in France, information remains scattered among various organisations or research centers and very little data are collected systematically.

2.1 Demand

2.1.1 National survey

In France, the first studies on recreation and public perception of forests date back in the 60's and 70's (SARES 1969, Kalaora 1975, Baillon 1976). General interest for this topic seems to have somehow decrease during the 80's, before a renewal in the 90's (Lewis 2004). In the last ten years, three important household surveys have been realized providing information on recreation in forests (Dufour et Loisel 1996, Peyron *et al.* 2002, ONF 2005). The following data related to recreation uses are commonly collected: participation rate and visits frequency, types of activities, socio-demographic characteristics, accessibility (distance or time traveled, mode of transportation), home place (rural versus urban), regional patterns. Sometimes, other places of outdoor recreation are also asked (Peyron *et al.* 2002, ONF 2005). (ONF 2005) makes a difference between recreation during free time and holidays. Surprisingly, no estimation of total annual visitors (or visits) has been proposed, even if some information allows a rough approximation.

Each of the three surveys adds questions about perceptions and personal values related to forests, opinions and knowledge on forestry or recreational infrastructure.

Peyron *et al.* (Peyron *et al.* 2002) provide an approximation of the economic value of recreation including picking and hunting. At this stage, recreational value appeared to be at least comparable to wood production but the results need to be confirmed. This study was primarily designed for the definition of a European accounting framework of forests economic values (Eurostat 2002).

In addition, one also finds national surveys not strictly related to recreation but rather on public perceptions of forests, wood products and forestry.

2.1.2 Regional studies

Aside from strictly on-site studies, two regions of France have been investigated as a whole: Lorraine in the north east of France (total area 841,000 ha.) and public forests around Paris (total area 89,000 hectares).

¹ This is not specific to forest but rather a sign of the growing interest assigned on the relationship between society and the environment (Lewis N. (2004), *De 1960 à 2003 des enquêtes pour cerner le lien entre forêt et société*, Cemagref - Département Gestion des territoires, Bordeaux.)

In 1997, Normandin estimated that forests of Lorraine received around 90 millions visits annually (Normandin 1998, Peyron 2000), i.e. 107 visits per hectare approximately. The travel cost method is therefore applied to evaluate economic value of recreation. The robustness of the results is not obvious because two years later Peyron *et al.* (Normandin 1998, Peyron 2000) obtained 22 millions visits (26 visits per ha.). Looking for an estimation of 1999 storm impact, authors found a decrease in visits by 5 millions between 1999 and 2000, and provide an economic valuation using the travel cost method. Each times, questions about activities, socio demographic characteristics or distance travelled were collected.

Another example of regional studies is given by Maresca (Maresca 2000) which focus on public forests of Ile de France. In 1999, the total estimated number of visits was 90 millions, i.e. more than 1000 visits per ha. This corresponds to a 60% increase compared to situation in the 60's (SARES 1969) and this is twice the numbers of visits in all movies theatre. Results are distributed among the various forests and woods. The more important is Fontainebleau forest with 17 millions of visits approximately. Questions about activities, socio demographic characteristics, perceptions and opinions on forestry were also asked.

By studying a large area of Mediterranean forests, Cazaly (Cazaly 2002) can also be placed in this category. Questions on use patterns, perceptions of forests and opinions on forestry were asked. No evaluation of annual number of visits is provided.

2.1.3 On-site studies

It's certainly not possible to give an exhaustive list of all on-site studies realized in France. Furthermore, without any standardized methodology, comparisons are difficult if not impossible. We find different sort of objectives and methodology: from counting to detailed individual analysis, based either on sociological or economic theory.

For illustration, the following examples can be cited: coastal forests in South West of France, (ONF/AFIT 1996, ONF 2002, Dehez 2003)), Mediterranean forests (Claeys Mekdade et Jacque 2000, Cazaly 2002), mountain forests (Rapey et Michalland 2002), or urban forests (Bonnieux et Guerrier 1992, Bonnieux et Rainelli 2003).

2.1.4 Inventories of other protected spaces

Other on-site studies can be found in protected areas with some forest cover, such as national parks. Forests and non forest recreational attributes are hardly separable.

2.1.5 Inventories of outdoor recreation

French national statistics deal with outdoor recreation in many ways, but without focusing on forests in particular.

Among others, two principal sources can be cited :

national surveys on population time use².

national studies on sports and outdoor recreation.

² Since 1998-1999, a standardized European protocol is used.

Occasionally, some studies focus on outdoor activities in forest (recreation parks for instance (Berger *et al.* 2002)).

France has also developed important information systems for tourism observation, but none concentrate on forest activities and rather deal with rural tourism in general.

2.2 Supply

On public forests, recreation is widely known as a major objective (along with production and conservation). As a consequence, access is generally free for pedestrians with few restrictions according to environmental or safety purposes. On private land, access right is defined by the French civil law: the forest owner can close his property but if he does not or does not put road-signs to forbid access, he is supposed to allow pedestrians to come in (in this latter case, he is responsible for visitors' safety). Actually many people do visit private lands. Incentives for developing access on private forests are growing in number according to the last forest law but the system is still in its infancy.

2.2.1 Forests inventories

Various inventories offer data such as forest cover, tree species, composition, etc. which can be seen as natural attributes of recreational services. In addition, some provide relevant data on ownership (ECOFOR 2001). Forest cover around largest cities (200,000 inhabitants, 50 km radius) has recently been taking into account, including evaluation of total forest area, ownership and tract size distribution. This gives an indication of maximum available land for recreation and allows comparisons between cities.

Further information on recreation is available for State forests, through an evaluation of forest area exclusively dedicated to this use. It has been once completed with other lands concerned by recreation³.

All previous data are used for sustainable forest management reports (MAP-IFEN 2000, Eurostat 2002, MCPFE 2003).

The only one inventory of facilities ever realized concerns State forests and dates back from 1986. It gathered information on recreation areas, sports and information trails, picnic facilities, shelters, hiking or riding trails, very ancient trees... Until then, no further attempt was made.

For private land, little information is available from the national survey made by Ministry of Agriculture (SCEES) in 1999⁴. Regarding recreation, owners were asked if they allow people to recreate, then if people do so and finally if it causes any problems. The results are interesting because 86% of owners (*e.g.* 72% of global area) answered they allow access despite they have the right to deny it and recreation is perceived as "high" by only 5% of them (*e.g.* 12% of the area). Moreover, 87% of owners declared that current level of recreation causes no problems. Some other questions concern hunting.

³ Most of the time, there are no specialized recreation area and multiple use management is applied everywhere in the forest.

⁴ The study cover properties exceeding 1 hectare (*i.e.* 90,38% of the total area)

Aside from the previously described attempts, no other national account of forest recreation opportunities is actually known and basic data remain scattered between owners and managers. For public forests, information is available in management documents but they depend on the specific stakes of each forests and in general they can't be added at a higher level. Furthermore, State forests have regional planning documents but they don't deal very much with recreation. Information on private land (wherever recreation exists) is almost impossible to obtain through management plans.

Other sources of information may be found in academic studies applied to various forest sites. For example, private owners have been questioned on accessibility and recreation on their land (Duhon 2000, Rapey & Michalland 2002, Schlumberger 2002, Didot 2005). Unfortunately results are hardly comparable due to methodological problems and sampling bias. From an economic perspective, Dehez (Dehez 2003) has estimated production costs of recreational services on State forests in the South West of France. Evaluation of total costs, as well as costs functions, are proposed.

2.2.2 Inventories of protected areas

More data may be collected from other protected spaces information systems, which are partially covered with forest and where recreation is allowed. Usually, it's difficult to separate forests and non forest settings. Here again, national park system offer a good example and useful information are obtainable in park management documents⁵.

2.2.3 Inventories of outdoor recreation

One can also look at inventories on outdoor recreation but with a comparable limitation: except for very specific activities, forest settings are difficult to separate from other spaces (mountain, water, etc.).

French Ministry of Youth and Sports is actually engaged in a notational census of all sports facilities. Some of them may concern outdoor recreation in forests such as trails or ski resorts. It should be ended by the end of 2005.

In the same time, specific inventories on outdoor recreation have been proposed by many regional or local public institutions. Incentives have been recently added in French law (2004) to promote the creation of such information systems, but this program has just begun.

3 Summary of methods used

3.1 Demand

3.1.1 National survey and regional studies

(Peyron *et al.* 2002) is based on a representative sample of French households (4.500 observations) and use telephone interviews, although (ONF 2005) is based on a representative sample of 15 years old and more population (1.000 observations), with face to face interviews.

⁵ <http://www.parcs-nationaux.org>

Regional studies are also based on household surveys, which offer information on non-participants. For instance, Normandin (Normandin 1998) used a postal questionnaire with a sample of 4,000 households randomly selected. Nevertheless, the response rate is very low (17%). Peyron (Peyron 2000) used telephone interviews on a randomly selected sample of 1,532 households. In that case, the rate of response exceeds 90%.

Maresca (2000) is based on a double system: a first recruitment survey (2500 interviews) and a self-description of forest visits reported in a notebook to allow the monitoring of real practice during one year (879 respondents).

(Cazaly 2002) is based on a representative sample of 15 years old population (802 observations) and telephone interviews.

National survey on population time use has been repeated four times since the 60's, although surveys on sports and outdoor activities are limited in time. They are usually based on sampling method and interviews.

3.1.2 On-site studies

As previously seen, methodologies of on-site surveys differ a lot, according to the purpose and/or the discipline (geography, economy, sociology, etc.). Data are usually collected through face to face interviews. Self completion forms are very rare.

Quantitative as well qualitative research is developed. The latter case is generally associated with sociologists' works and induce small samples (30 to 70 interviews). These techniques are useful for a complete understanding of individuals motivations and sometimes are combined with larger surveys to examine in a more detailed way the results from some specific sub-populations (ONF 2005).

Because of operating problems, visitor counting is not very frequently used. Wherever it occurs, it is generally achieved *via* automatic vehicle counters or manual people counting. Automatic people counting systems (eco-compteurs ® either with IR cells either with pressure system put under the trail ground.) can be used for pedestrian counting in specific areas but they are difficult to use in most forests because of a big number of ways of access and trails. Aerial photography is sometimes used (on coastal zone for instance (ONF 2002)).

3.2 Supply

Information on natural attributes of forests are obtained by various methodologies and protocols, depending on the relevant topic. Information on ownership come generally from cadastral surveys or fiscal statistics. Information on recreational areas are collected directly from management documents at local French Forestry offices. Such a method can not be used to collect more detailed data on recreation facilities. Every data reused for sustainability indicators are supposed to be actualized every 5 years.

Survey on private owners is based on a randomly selected sample of 1,000 individuals and telephone interviews. This allows many statistical operations and regional outputs.

Inventories of sports facilities are obtain directly *via* local offices of the Ministry of Youth and Sports. Local inventories of outdoor recreation should be done by specific organisms as defined by the Sports Law (2004). Wherever they exist, these organisms bring together public institutions and relevant sports associations. At this stage, no GIS interface is planned (to be confirmed).

3.3 Models

Theoretical models can be obtained by crossing spatial data on population and on forest characteristics. There are a few works developed either at the national level and the local level (Michon, Hermeline 2001 – Dellier J., University of Limoges, 2003).

4 Organization of conducting inventories and state of monitoring policies

As previously seen, despite the lack of databases on forest recreation, much information exists in France on the topic. Data remains scattered between various forest institutes, universities and many non-forest organisms (sports, tourism, national parks, etc.).

Since the 1990s, recreation and outdoor activities have been reinforced by many political documents or laws and research project multiplied, but no real consensus has emerged for inventorying and monitoring.

Finally, recreation and nature tourism are seldom analyzed from the forest point of view in France. As the French State, which is also the main forest owner (1,430 forests covering 1,710,000 ha in 2004), has transferred the greater part of forest recreation charge to the local communities but a few things are left for national policy about the topic. The main ones are organization of multi-functionality in forest planning, sustainable management of forest stands and landscape protection in forests with a high social value. Almost nothing left about recreation infrastructure creation or maintenance.

That is why most inventories and monitoring projects with a management purpose are now launched at a regional or local level. At the moment, and in a short term future, the only structures that could be interested in a global knowledge about forest recreation are research teams according to their specific aims (Cemagref), the ONF, that is in charge of public forest planning and management or some structures representing the private owners.

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APPENDIX 1 Publications of national importance

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Germany

COST E33 WG2 Country Report

Recreation and nature tourism demand, supply & actual usage

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1 Introduction

2.1 General description

Over the past 20 years, the recreational situation in Germany has changed. The spectrum of free-time activities that are found in nature has expanded, due to new leisure and recreational trends, and an increased number of recreation seekers (e.g. TRITTIN, 2005; OPASCHOWSKI, 1999). Increasingly recreational forms are becoming more technical, which often conflicts with other traditionally quiet forms of recreation. For both these reasons, the demand for free-time activities in nature continues to increase. Due to the lack of recreational areas in urban settings, landscape areas that are well suited to free-time use are often overused. In these cases, the recreational demands lead to conflicts with competing demands and, in many cases, to strain on and the destruction of natural resources. Furthermore, many phenomena, (for example high amounts of visitor traffic, vandalism of recreational facilities, littering and a failure to abide by the rules) have become real concerns for recreation management. Social conflicts increasingly arise between people with differing free-time interests. The great diversity of free-time activities results in largely differing expectations and demands of recreation seekers. Expectations can differ so much that people, who are disrupted by other users, feel disappointed with their recreational experience; they may then seek alternative activities that will increase their utility. Increasingly, therefore, conflict situations arise both within and between user groups. As recreation seekers shift to nature areas that are less frequented and appear more suitable, associated damages are often shifted and extended into the ecological sphere.

The percentage of undisturbed landscapes is decreasing and an uncontrolled use of many protected areas is the result (e.g. SCHEMEL & ERBGUTH, 2000:59f). A sustainable recreation management, which considers ecological as well as social aspects of recreational use, appears necessary in the face of societal changes. This includes a careful inventory of demands and supply concerning the recreation infrastructure and its users.

1.2 The need for recreation inventories

Since 1999, the **National Forest Program** (NWP) has been developed (NFP, 2000; NWP, 2003) to encourage future sound management of forests and to meet various interests in the use of forests. The program provides the Federal Ministry of Food, Agriculture and Forestry with demand side information for its forest policy activities and constitutes a social consensus on the sustainable development of forests. The program considers new developments in leisure uses, potential conflict areas, points out the need for public relation work and stipulates the need for local level visitor flow management and gearing of recreational services to demand. Although the strategies have not been finalised, in 2004, a monitoring system was initiated to evaluate the efficiency and quality of actions suggested in the program (ELSASSER & LISS, 2005).

Other documentation present laws that state the need for sustainable recreation management. The basis for recreation planning is set out in the **Basic Constitutional Law** (Art. 2, Abs. 1) which protects visits to nature and engagement in activities in nature for recreational purposes as part of the general freedom of action. The law gives everybody the right to use recreation for personal development purposes. Recreation planning has become a social-political goal with government in charge of the development of a sound recreation infrastructure that allows the public to participate in nature based leisure activities and recreation (SPLITTER et al., 2000:20). The government realizes its duties with the help of the **land use planning legislation** on different administrative levels and the relevant planning acts like the **Federal Nature Protection Act** (BNatSchG) and the **Federal Forest Act** (BWaldG).

The Federal Nature Protection Act specifies recreation planning in terms of environmental compatibility (§56, 57). Nature based recreation activities are accepted as long as the protection status of landscapes is met and harmonised with the ecosystems (STADLER, 1996:148). Besides the protection of landscape, the environmental compatibility policy also includes recreation structures and quality of experience with respect to impact of other users. The Federal Forest Act allows the public to enter all kind of forests for recreation purposes (§14) at any time, everywhere and independently of ownership structures, with only few exceptions. In particular, forests close to urban areas are under high user pressure and their foresters are urged to maintain and develop recreational infrastructures. Given the limited financial resources available, information about the demand and supply of recreation services will prove valuable to the planning and development process.

1.3 Science-based analysis of the need for recreation inventories.

Management of landscape areas for recreation has two goals: (1) to maintain natural conditions; and also (2) provide opportunities for recreation on a sustainable basis without damaging the natural resource or to create unacceptable social impacts (DEUTSCHER BUNDESTAG, 1998). Since 1970, the ecological impacts due to recreational use of landscapes have been a central topic for research. It is recognised that conflicts occur due to the overuse of natural resources, which vary in time, space and activity. Impacts arise via infrastructural developments and activities (e.g. SCHMIED et al., 2002:27; PETERMANN, 1998:60; OPASCHOWSKI, 1999:127, WEIGER, 1982:253f), which cause damage to flora (e.g. RUSTERHOLZ et al., 2000; SEIBERT, 1983:36f), fauna (e.g. FISCHER & HAHNKE, 1994, FECKER et al., 1982), water (SCHMIED et al., 2002:35; BfN, 1997) and air (MEIER, 2000:11; OPASCHOWSKI, 1999:30). Some of the main leisure activities have been surveyed and their impacts described e.g. for hiking (BRÄMER, 2000, VOLK et al., 1995); mountainbiking (JACOB et al., 2002; WÖHRSTEIN, 1996), horse riding (AMMER & TITZE, 1985), climbing (HERTER, 2000; DAV, 1998) and

skiing (PETERMANN, 1998; JOB, 1991; VOLK, 1986). The conclusions of all of these studies were that nature and landscapes carrying capacity is limited.

A general issue under impact assessments of this kind is that the impacts have several repercussions and seldom have one single cause (ENQUÊTE-KOMMISSION, 1997:64). The spatial and temporal problem of the distribution of leisure activities in nature has been observed. Solutions include the concentration of usage in some parts and the release of other ecologically more sensitive areas. Areas with highly developed infrastructure should be used as the areas to concentrate recreational uses (ROTH, 2000:37).

Today's problems exist because new leisure developments were often not actively recognised in infrastructural planning. Recreation has been described mainly as existing services and infrastructure, with little focus on the users themselves and their changing demographics and preferences. As a result, many activities concentrate on limited resources, using out-dated infrastructure from the 1960s/70s. The multifunctional use of agricultural and forestry roads may reduce ecological impacts, but it enforces social conflicts between user groups who do share the recreation infrastructures (e.g. DSB, 2001:30, AUBE, 2002:12). Visitor flow management strategies often don't work effectively anymore. Attempts to reduce conflicts with regulations have failed and potential for conflict still exists (FROITZHEIM, 2002:91). Because recreational opportunities are limited, modern visitor flow management concepts have to acknowledge new user demands. Reliable information on visitor use is necessary for an effective recreation planning system in the light of changes in society and leisure trends. Monitoring systems are most needed in areas that are visited by large numbers of visitor/tourists because conflicts with and between recreation participants are most likely to occur in these areas. Measurements of human users could provide a baseline for planning and management and help to describe how uses and resource conditions are changing. For this reason, and to help manage potential conflicts, information about demand and supply is valuable. Such conflicts may be those that already exist or those that may develop as a result of activities and societal changes in general. Data should therefore be collected to present evidence for the planning process and its context, its present situation, use history and development.

In addition to less experience with collecting data, limited political willingness and financial resources are considered among the main reasons for a lack of demand and supply information. The existing planning and law instruments are not fully able to provide conflict solutions for recreation, sport and tourism, because conflict potentials grow faster than solutions are found (e.g. SPLITTER et al., 2000:19; BFN, 1997:268). Potential interest groups that represent recreation participants needs and demands, like the German Alpine Association (DAV), German Sport Association (DSB) or Tourism organisations have also begun to develop possible conflict solutions.

2 Recreation inventories in the past

2.1 General description

Inventories on recreational uses of natural areas are carried out in the light of landscape planning approaches. Recreation planning is not undertaken by one central organisation but rather as an integrated planning approach embedded in landscape planning frameworks on different administrative levels. The linkage of environmental/recreation management with spatial planning should result in a preventive environmental policy. Environmental objectives therefore play a dominant role within planning strategies. Recreation use is predominantly managed according to its envi-

ronmental suitability and less on quality aspects of recreation experiences or user preferences (OBENAUS, 1999).

Germany's landscape planning system consists of three levels: the State level (State level plans or Programs), regional planning (Regional Plans) and municipal planning (Master Plans). The longest tradition of spatial planning is at the municipal level, guided by federal law (HAASS, 1995).

Recreation opportunities are regarded as "soft" site-related factors, which are part of the economic planning for communities and appraisals of estates. Thus, recreation is a high priority for communities because it allows the creation of attractive recreation environments which maintain and/or enhance the quality of living, mostly via regional or local master plans (Lfu, 2002). Practically, the entire area of Germany is covered by municipal master plans, which propose land uses for a period of the next 10-20 years (HAASS, 1995). All plans are coordinated vertically (within the spatial planning hierarchy) as well as horizontally (with all concerned sector plans and Programs).

The primary task of landscape planning lies in securing the existing supply of recreational infrastructure and highlighting appropriate areas for future plans. The compilation of national, standardized data on the recreational use presents problems because the federal structure of planning exists on different levels. At State level, the standardized tool of **forest function mapping** exists, which estimates recreation use levels based on infrastructural developments. It classifies recreational use in two categories only: **use level one** (highly used) and **use level two** (less used) (VOLK, 2001). The data describes the geographic position of recreation areas, the recreation infrastructure and the distance to urban areas. Some States do this mapping very ambitiously (e.g. Baden-Württemberg, Bavaria), others seldom or never. Forests officially dedicated to recreation purposes cover between 5% (town States like Berlin or Hamburg) and 100% of the whole forest area (vgl. ZUNDEL & VÖLKSEN, 2002:10). While physical and biological data has been surveyed on a regular basis, little systematic social data has been gathered (PRÖBSTL, 2000).

Other scientific recreation inventories are often ad-hoc, carried out by project groups, individual research interests or progressive planning ambitions. Core research areas are found near to universities, urban areas or protected areas (e.g. National Parks), mainly because interests originate from academia rather than from administration. Often surveys are used as a basis for inventories in larger regions, however there is no central database that could be regularly updated.

2.2 Demand

Recreation demand analysis highlights the activities people do, how they feel and what they want by way of landscape and recreation. By comparing this information with a detailed inventory of existing recreation opportunities it is possible to determine "needs" for recreation. Most information on recreation demand is contingent upon the supply of existing resources. Input comes from regional planning, which generally specifies areas of higher demand in health resorts and tourism places (hot spots) and close to urban areas. The basis for infrastructural planning is spatial assignment, state of development, size and the adequacy of free space for different aged user groups. Factors that describe the physical characteristics of a site are measured regularly, however the collection of information regarding factors that directly or indirectly affect recreation usage is comparatively rare (MAYER & WILDBURGER, 1998).

Information about recreational participants is based on individual research studies. Data frequently include the annual number of visits, the distance travelled, mode of transportation to the destina-

tion and the type of activity (e.g. NOHL & RICHTER, 1996; VOLK, 1989). Also preferences, attitudes or motives are assessed on an individual basis (e.g. BICHLMAIER, 1969; AMMER & LUTZ, 1972; LOESCH, 1980; ELSASSER, 1996a). The surveys undertaken by SCHMITHÜSEN et al, 1997; SCHMITHÜSEN & WILD-ECK, 2000, deal mainly with the aesthetical arrangements of forests. As a result, the enhancement and further development of recreation areas is completed by landscape enhancing arrangements like plantings and fosterage or via further development of existing facilities, for example hiking trails, huts or other facilities. Surveys differ greatly and information is useful on an individual level. Visitor use data is mainly quantitative.

Researchers mainly addressed the economic valuation of recreation demand in forests and in rural areas in the 1990s. Regional studies covered tourists' demand in the Southern Harz (LÖWENSTEIN, 1994), in Lueneburger Heide (LUTTMANN & SCHRÖDER, 1995), and in the Palatinate Forest (ELSASSER 1996b); a pan-German valuation of holiday makers' recreation demand is contained in ELSASSER & THOROE, 1997. The regional demand of residents (day users) was estimated for the Palatinate Forest and for the City of Hamburg (ELSASSER, 1996, 1999); for pan-German results see ELSASSER, 2001.

2.3 Supply

Data about recreation supply varies between States and areas. Important databases which cover the recreation infrastructure of most forests are held by the State Forest Services (VOLK, 2001). While there was high emphasis in the 1970s on equipping forests with recreation supply, nowadays, a more careful planning and allocation is carried out within an environment of limited financial resources (VOLK, 1995). In addition, most surveys stated that users have no problems with existing recreational supply (KREISL, 1986; LINDE & WELZIEN, 1975).

Recreation supply data is quantitative, described by the infrastructural development of an area (e.g. ZUNDEL & ROEHTER, 1978). It includes the geographic position of recreation areas, the resource elements and the distance to urban centres (e.g. OBENAU, 1999; AMMER & PRÖBSTL, 1991). The main category of recreational supply data consists of the quality and number of paths, particularly in forests (e.g. DRAHM, 1999; NOHL & RICHTER, 1986). Comparable standards exist concerning the quality of paths in the views of different user groups, like the face, width, and length etc., less information is available regarding quantitative parameters (e.g. density of paths).

Planning also considers multifunctional aspects, e.g. the combination of hiking paths and logging roads. Forestry and agricultural road systems form the basis for recreational infrastructure (DOBLER, 1973). A national database covering the recreation supply does not exist.

3 Summary of the methods used

3.1 Demand

Differing methods have been employed to assess recreation demand: The use of more technical population based standards represents one of the most widely used methods for assessing recreational demand. The popularity of this method is perhaps due to the fact that these standards are administratively convenient. They serve to indicate the adequacy or inadequacy of existing recreation supply in terms of geographically distinct segments of the population. This type of survey data is used for forest function mapping to determine recreational demand.

Most surveys and analysis are based on individual research interests or progressive planning ambitions. The main research interests were from foresters in the 1970s and 1980s, mostly without the help of social scientists. The main tool employed was the quantitative questionnaires, however some work was completed using manual or automatic counts and qualitative interviews. Household surveys were also used to produce estimates of use. Sample sizes differ and no standardised methodology exists.

On a community/local level, the demand for recreation has been registered through political processes, by which the public attempts to influence political decisions affecting recreation. This kind of public influence often takes place at the local level within city councils.

Several methodologies for determining recreation demand have been developed but none provide exact quantifiable results. Until a methodology is developed, which can qualify and quantify physiological, social and psychological benefits derived by recreation participants, recreation planners will continue to operate partially on the basis of intuition and good judgement.

3.2 Supply

The most important database for recreation supply in forests is the forest functions mapping provided by the State Forest Service. GIS is used for all these databases on a national level.

4 Organizations of conducting/maintaining of inventories and databases + State of policy of inventories

Mainly the State Forest Services and communities maintain databases of recreational demand/supply. They should be updated on a regular basis (every 10-20 years) however the execution varies greatly between States and communities. The forest function mappings serve as information bases and are legally effective when part of a framework plan.

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Appendix 1. Publications of national importance

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Greece

COST E33 WG2 Country Report

Recreation and nature tourism demand, supply and actual usage

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1 Introduction

Greece is situated in the south of the Balkan Peninsula and is a part of the European East Mediterranean Region. It has about 42 mountains higher than 2000 m and a landscape of high diversity. Seventy per cent (70%) of the land is mountainous. The flora has a Mediterranean, Central European and Irano-Caspian character. Approximately six thousand (6,000) plant species have been identified in Greece, of which about 800 are endemic (Ministry of the Environment, Physical Planning and Public Works). The diversity of vegetation, flora and fauna has resulted in numerous ecosystems, from the semi-desert palm forest in Crete (Dafis 1985), to the boreal forests of birch, Scotch pine and spruce in the mountain range along the Greek-Bulgarian border (Smiris 1987). This diversity of ecosystems is crowded into a relatively small space. There is also a great variety of non-zonal wetland ecosystems, influenced more by their hydrological characteristics than by climate.

According to the results of a National Forest Inventory in 1992, forest vegetation in Greece covered 49,3% of the country's total area. This comprised high (industrial) forests (25,4%, i.e. those producing more than 1m³/ha/year) and non-industrial forests (23,9%, i.e. low output land for grazing, fuel production and soil protection). Of the commercial forests, 22% consist of coniferous species (*Abies sp.*, *Pinus halepensis*, *P. brutia*, *P. nigra*, *P. silvestris*, *P. leucodermis*, *P. pinea*, *Abies sp./P. nigra*, *Picea abies*), and 30% consist of broad-leaved species (*Fagus sp.*, *Castanea sativa*, *Quercus sp.*, *Platanus orientalis*, *Betula verrucosa*).

A large percentage (65,5%) of the area covered by forests belongs to the state, 12% to local communities and only 22,5% is private land, belonging to monasteries, individuals, groups of owners and various foundations. All the forest areas are handled under carefully managed design plans, subject to strict governmental control and regularly renewed (every ten years for state forests and every five years for private forests). The management plans carefully consider all physical, ecological and productive conditions of the forests. Following these ideas, all silvicultural treatments are prescribed in accordance with actual ecological conditions, taking also into account biodiversity and aesthetic features.

2 Recreation and nature tourism demand and supply inventories

2.1 Introduction

Nature has always exerted an attraction on man, which has deep emotional roots. Instinctively man feels it necessary to return to nature and, at least for a while, live in a natural environment. This need is greater today, because with the irrational use of natural resources the natural environment has become confined to small “oases”.

Such “oases” are often given protected area status; in particular, in Greece, the protected forest areas can also be used for recreation.

The types of national Protected Forest Areas in Greece that can be used for recreation are the following:

1. National Parks. They are mainly forested areas of special conservation interest on account of flora and fauna, geomorphology, subsoil, atmosphere, waters and generally their natural environment. The protection of these environments seems necessary to allow for the conservation and improvement of their constitution, form and natural beauty, to permit aesthetic, psychic and healthy enjoyment and, moreover, they are areas for carrying on special research of any kind.

In Greece there are 10 national parks and they occupy a total area of 95,000 hectares. Of this total, 35,000 hectares are in fully protected core zones. Of the remaining area, 34,000 hectares are in peripheral zones within five of the national parks and their areas have been delineated. Peripheral zones also exist in the remaining national parks, but they have not been formalized. An additional 26,000 hectares have been earmarked for protection in these ‘yet-to-be defined’ peripheral zones.

2. Aesthetic Forests. Forested areas or natural landscapes which possess particular aesthetic, hygienic and touristic significance and which also have characteristics that demand the protection of their fauna, flora and natural environment. There are 19 such forests, occupying a total area of 33,000 hectares.

3. Peri-urban forests. Forests surrounding urban areas which are recognized as important areas to the quality of life of citizens.

4. Organized recreation sites in various productive forests.

In addition to the above, there are also some forested areas in Greece which have special interest from the ecological point of view because of their rare fauna or flora. These areas have been included in the “Natura2000” network of the EU and their management plans are now being drawn up and finalised. In those areas, apart from the various protected measures, informal recreation will be among the main activities.

Forest recreation is considered a natural resource. Recreation in Greek forests dates back to the 70’s and coincides with the improvement of the standard of living. Direct reference to recreation is made in article 4 of Law 998/1979 and an indirect reference can be found in articles 3, 5, 16, and 48 of the same law. In 1986 the law - framework 1650/1986 “On the protection of the

environment” was passed. This law contains a specific chapter “ On the Protection of Nature and Landscape”.

In 1998 a Joint Ministerial Resolution was published which provided for the establishment of a National Committee of “Natura 2000” Sites.

Finally, in 1999 the law on “Land-use planning and sustainable development” was enacted (Law 2742/1999), which supplemented the aforementioned laws and made provisions for reforms in the existing system of Administration and Management of Protected Areas. It also expanded the jurisdiction of the National Committee on “Natura 2000” sites to the whole network of Protected Areas, which means that it is acting also as National Committee on Protected Areas. The work of the Committee is the coordination, monitoring and evaluation of the procedures for planning, organization and operation of the National System of Administration and Management of Protected Areas.

The following Ministerial Decisions are important for recreation; no. 66102/970/1995 “Regulating matters concerning outdoors recreation within forests and other wooded land”; no. 91874/1845/1996 by which local Government Organisations have the right to set up small recreational facilities within forests.

Although the legislative framework is quite sufficient, nature is not protected effectively because the measures taken are usually fragmentary and without strategic and long-term perspective.

2.2 Recreation inventories

The Forest Service of GSF&NE has, since 1982, carried out Forest recreational works within the state forests and other wooded land. These works are of small scale, low cost, placed discreetly in the area and don’t change the aspect of the landscape and ecosystem. **In forest recreation areas, the construction of works such as arboreta, playgrounds, vantage points, trails and paths, sports grounds and car parking areas are allowed. The right to organise forest recreational areas are, besides the GSF&NE, also governed by local Government Authorities and natural representatives, within community and private forests, respectively.**

Due to a perceived increased desire for short residences in the natural environment, the Ministry Agriculture has, alongside the Forest Service, developed Forest Environmental Settlements, the so called Forest Villages. Six forest villages have been constructed all over Greece in areas of special landscape. In each village twenty houses with accommodation capacity for up to eighty persons, integrated into the natural environment, have been developed. They have been equipped with all the necessary facilities to serve their clients. Also, works for active recreation (20 skiing centers and 45 mountainous refuges) have been constructed, mainly by the National Tourist Organisation of Greece and the Greek Mountaineering Confederation.

As already mentioned, in the 80’s there was an increasing awareness of matters related to nature and outdoor recreation activities and political decisions were made to construct these recreational works. There is no nation wide inventory for recreational supply. There are only data for recreational works constructed in various recreational areas but there is no statistical database for recreational supply because there has been no continuity in monitoring the condition of recreational facilities after their construction.

Also, there is no nation wide survey monitoring demand. A survey was carried out for Olympus National Park to collect data. A 'double questionnaire' was used to carry out a survey during a five-month period (May to September in 1990). The survey team interviewed the visitors and filled in the first part of the double questionnaire, while the second part of it was handed out to the visitors allowing them to answer it themselves following their visit. They were asked to return it to the entrance point or post it to the research team address. A sample of 3268 visitors were interviewed and 1831 (56%) of them returned the second part of questionnaire. The data collected in this survey were the number of visitors, frequency of visiting, time of the year and the day they preferred to visit recreation areas, the duration of stay, method of travel, the distance of travelling to reach the recreation areas, types of activities (walking/hiking, picnicking, nature observation, climbing etc) gender, age group, education, occupation etc.

Another demand survey for recreation was carried out for the Forest Park of Thessaloniki. The method used was personal interview and took place from May to September in 1983. The sample was 522 questionnaires from which 444 were completed (85,4%). The purpose of this survey was to monitor the active demand of forest recreation in that period and the future demand.

In addition, a key element in the planning of recreational activities in national parks and other recreational areas, is an awareness of the visitors' preferences. To this end, a research programme was undertaken entitled "Investigation on the needs and perceptions of National Parks' visitors for the Improvement of their management methods". In particular, this programme aimed to study the preferences of National Parks' visitors and investigated their motives, satisfaction, behaviour and perception. These parameters of human behaviour were in turn incorporated into the procedure of the integrated management of National Parks.

2.3 Organizations conducting/maintaining inventories and databases

Responsibility for matters relating to the natural environment at the central level lies principally with the Directorate of Aesthetic Forests, National Parks and Hunting and partially with the Directorate of Protection and Natural Environment of General Secretariat Forests & Natural Environment (GSF&NE). Policies formulated by these directorates are applied to forest practice by the forest District Offices and Forest Directorates.

The organization, function and management of protected forest areas within National Parks are governed by regulations issued by the Minister of Agriculture, and for the other protected forest areas by the regional or local Forest Authorities.

The existing legal framework dictates that the Forest Service has the jurisdiction for planning and management issues in the protected forest areas. The local Forest Service, at the Prefecture level, is responsible not only for the protected forest areas but also for all forestry issues within the prefecture. The regional Forest Service is responsible for the approval of all kinds of forestry plans and programmes, including those concerning protected forest areas, and for inspecting the forest authorities under its jurisdiction.

The first step of the required procedure for existing protected areas (and for the designation of new protected areas) is to have a Special Environmental Study approved by the Ministry of the Environment, Physical Planning and Public Works. After approval of the study, and following public hearings and consultations, a Presidential Decree will be issued stipulating the necessary

management actions that will be included in the final Decree; the Decree also identifies the Administrative Authority responsible for the management of the specified Protected Area.

In several cases, Special Environmental Studies have been conducted and are currently in the approval process. To date, Presidential Decrees have been issued for two National Parks; in other cases, forest law remains in force until the fulfillment of the above mentioned procedure.

The responsibility for the selection and designation of the protected areas (in accordance with the law "On the protection of the environment" Law 1650/1986) belongs to the Ministry of the Environment, Physical Planning and Public Works. The implementation of the management measures described in the Management Plans, is the responsibility of the authority defined in the Presidential Decree, i.e. the authority who designated the specified area as protected; in the case of the Forested Areas, this is the Forest Service. After a concession made by the Ministry of the Environment, Planning and Public Works, non-governmental organisations (NGOs) are permitted to be involved in the process of drawing up Special Environmental Studies and/or Management Plans.

3 Conclusions

Forest recreation plays a **steadily increasing role in Greece, especially in rural areas. Although forest recreation can contribute to development and economic policies, it is recognised that, when combined with environmental education, it also contributes to nature conservation, environmental protection and preservation of species. Furthermore, recreation, aesthetics and landscape enhancement are functions which provide general public and community benefits. Greece places high importance on these functions and since they are complementary to the existing developmental efforts made in mountainous and rural areas, the functions help to provide employment opportunities for local populations and contribute to the overarching policy of sustainable development. On these grounds, forest recreation is regarded as an activity that provides the environment for the promotion of ecotourism and as an economic activity which leads to sustainability and the fulfilment of environmental objectives.**

The results of recreation research and the associated applications across the nation present some problems with coordinating the relevant authorities and interest groups. Policy makers sometimes ignore the results of recreational research. Although recreation research has been completed, lack of financing has sometimes been a factor that has inhibited the completion of recreation works. Importantly, local communities have the will to be equal partners with other bodies in possible future administrations and management schemes. It is believed that their involvement could help with resolving any arising conflicts and may contribute to better coordination in the management of the national parks and other recreation areas.

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Iceland

COST E33 WG2 Country Report

Recreation and nature tourism, demand, supply and actual usage

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1 Introduction

1.1 General information

Iceland's geographic co-ordinates are 65°00' N and 18°00' W. This island in the North Atlantic Ocean covers an area of 103,000 km² with a coast line of about 4,970 km. Of the 103,000 km², 23,805 km² is vegetated land (23%), 2,757 km² are lakes, 11,922 km² glaciers, and 64,538 km² is non-vegetated land. The mountainous center of Iceland covers about 40%.

24,700 km² or 24% of the total land surface, is defined as lowlands with an altitude of 0-200 meters above sea level (s.l.). 37,700 km² (37%) lies over 600 meters above s.l. and is considered highlands. The rest falls between 200 and 600 meters. Land below the 100 meters above s.l. is usually what is considered habitable in Iceland, though this also depends on the distance from the coast.

The climate in Iceland is temperate, moderated by the North Atlantic Current, with mild windy winters and cool summers. The average temperature in Reykjavík (the Capital city) for the period 1997-2004 was 0.4°C in February and 9.0°C in June, with an average of 4.3°C for the year.

The population of Iceland has grown rapidly; in 1800, the population was just over 47,000, in 1900 around 78,000 and in January 2006, the total population in Iceland had reached 300,000. The average annual population growth over the past few years has been around 1-2%.

1.2 Definition of the Term 'Útivist'

The broad use of the term '*útivist*' in Icelandic means "*being outdoors*" but is usually used to describe *being outdoors in close contact with nature*. In daily language, the term does usually not apply to urban parks, but may refer to less developed or undeveloped open spaces in urban settings. Usually, however, the use of the term refers to *being in a natural setting outside the urban edge*.

1.3 Brief Historical Background of Forestry in Iceland

When the Vikings first settled Iceland in the 9th century, it is thought that 60% of the island was vegetated, mainly moorland and heath. At least 25% is believed to have been forests and woodlands of a low, dense cover. The woodlands primarily consisted of Downy birch (*Betula pubescens* Ehrh.), the only forest forming tree species indigenous to Iceland, which for much of its range is only between 2 and 6 meters in height, which were interspersed with the occasional higher reaching Rowan (*Sorbus aucuparia* L). Woodlands rather than forests, then, might be a more appropriate term for many of the woods that the early settlers encountered.

Following the Viking settlement, deforestation and overgrazing over subsequent centuries, compounded by the extreme fragility of the natural vegetation cover and severe erosion, the total vegetation cover of Iceland has been reduced to 25%. Forest and woodland now account for only 1.3% of land cover, the lowest proportion in Europe. The remainder is barren (60%) or covered by ice and water (15%). Due to desert formation there is an increasing problem of Aeolian weathering causing the wholesale stripping of topsoil, and the burying of sensitive and hard-won vegetation cover, which is compounded by recurrent volcanic eruptions routinely obliterating large swathes of Iceland's vegetated areas at an average rate of twenty per century.

The result, given all these factors, the limitations of a short growing season and a harsh climate is that Iceland in the 21st century is greatly barren and denuded.

1.4 Reforestation

Forestry in Iceland was initially the preserve of Danish foresters, during the colonial time at the turn of the 19th Century. A great deal of early pioneering work was therefore necessary to adapt this knowledge to the very different and challenging environment of Iceland. In spite of its marginal status in the early years, forestry and the afforestation process have since caught the public attention. Currently three key actors can be identified in the forestry sector: The State Forests, the regional Farm Forestry Programs (5) and the Icelandic Forestry Association, a well-supported voluntary body of 59 local forest societies, who between them, initiate and plant forests and woodland on a significant scale across the country.

As tree growth in Iceland is slow (sometimes extremely slow in comparison to other European countries), the recreational value of many of these new woodlands has, for the most part, yet to be realised. However, the potential for shelter and soil stabilisation has been fully understood, and for this reason the new program has assumed a certain symbolic value, providing a rallying call for a new generation of environmentally aware Icelanders, keen to reverse the damage of previous centuries. Much value has been obtained by establishing a wide network of emergent woodland plantations across the country that are certain to have a significant impact on the landscape over the next couple of generations. The current pace of new plantation will, for example, result in a doubling of the forest cover (to 2.5%) within the next 80 years.

However, the process has not been without controversy, as some exotic species have been planted wholesale. Norway spruce (*Picea sitchensis*) as well as *P. engelmani*, *P. glauca*, and *P. abies*, several types of *Pinus*, namely *P. mugo*, *P. aristata*, and *P. contorta*, a few types of *Larix* such as *L. decidua*, *L. sukaczewii*, and *L. sibirica* and the Alaskan poplar (*Populus trichocarpa*), which although very hardy and generally successful, do not necessarily integrate well with the unforgiving and minimal aesthetic of the Icelandic landscape (to which the slow-growing native birch is

undoubtedly best suited). There has been an urgent need for fixed guidelines in this respect, to prevent a random plumb-pudding of disparate imported species from developing, and to avoid a new wave tree cover that fails to respect the character, grain and form of the land. Tree planting *for its own sake* is not the answer. The Forest Association has now published very thorough guidelines on their web-site (www.skog.is/leidbeiningar.htm) for all those, both professionals and amateurs, interested in planting a tree or large woodland.

1.5 Icelandic Forests “Types”

1.5.1 *The remaining native birch*

The sheer rarity of the original woodland, and the novel experience of being beneath an Icelandic woodland canopy, has inevitably made it a primary destination for local tourism. These woodlands, being dense, low and compact, to some extent carry with them their own defence mechanism: once a network of paths has become established, visitors generally stick to the routes and spaces allocated to them. In this respect a good balance has been achieved at key “honey pot” locations like **Odin’s Horseshoe**, between the strong concentrations of tourists, (a high percentage from overseas) and maintaining the well-being of the woodland ecosystem. It is characteristic of the Icelandic tourist industry that the bulk of the very rapidly increasing numbers of overseas visitors come specifically to see the landscape, especially given the high degree of wind and exposure. Such places therefore offer the visitor quality of experience on a number of fronts.

In the heavily used **Thingvellir** National Park, many of the minor roads that penetrate the ancient woodland are provided with small lay-bys with space for three or four cars apiece, positioned approximately every two hundred meters. During weekends and bank holidays the national park attracts large numbers of local visitors, particularly during the berry picking period in September. This dispersed system of distribution gives good all round access to the park at the expense of overall overcrowding, though few of these day-trippers stray far from their cars.

Another very popular tourist destination is **Thórsmörk** in the south of Iceland; crowded by local tourists during weekends (weekend camping), whereas foreign tourists frequent the place during the week for very short stops and hardly use the walking paths at all.

Established, “new generation” forests

These forests (predominantly coniferous) were planted 50-60 years ago by the Forest Service, primarily for timber, but increasingly adapted for recreation (e.g. Hallormstaða-forest and Mogilsá/Esjuhlíðar). The only truly extensive new generation forest in Iceland is **Hallormsstaða**-forest in the East of Iceland, where the climate is more conducive to tree growth. The forest, originally native birch woodland, expanded from large-scale enclosures used for sheep grazing in the 1910-1920’s. A total area of 177 hectares of foreign tree species was planted on a more or less experimental basis, during the 1950’s primarily for timber production. The forest contains one of very few tree arboretums in Iceland and boasts around 90 species from around 650 different places around the world, the majority of which are now well established. In 1995, the tallest tree *Larix sibirica* had reached 20 meters, then the tallest in Iceland. The maturing of the forest has coincided with the greatest influx of new breeding birds on record and the forest now provides invaluable habitat for previously unknown birds. For example, the Gold crest has colonised the forest in significant numbers and is now spreading to other pockets of woodland throughout the country, notably the new urban woodlands in and around the capital. Up to 40 km of paths are planned for the forest.

Although specific interest in wildlife remains generally low in Iceland, in marked contrast to the urbanised countries of the European mainland, the forest environment itself has proved to be a popular destination for local visitors, as footpaths, skiing routes and picnic sites develop. The nearest major settlement to Hallormsstaða-forest is the town of Egilsstaðir with a population of just 2,100. So in terms of recreational potential, the forest as a resource greatly outweighs the numbers of people present to enjoy it. It is likely however, that its status in relation to nature tourism will increase if the exponential growth of outdoor pursuits (especially hiking) of the past ten years continues within the indigenous population. In Icelandic terms, if not mainland European, conifer plantations offer an unusual contrast of environment, broadening the usual range of experience. Those of the Reykjavik population (which comprises half of the national population of 300,000) who engage in outdoor pursuits frequently travel long distances to make a start. The Hallormsstaðaskógur forest looks certain to see an increase in the numbers of visitors as the trend towards outdoor pursuits gathers momentum, though whether it becomes a key destination in future remains to be seen.

It has often been pointed out that, *in the most populous and urbanised countries in Europe, forests and urban green areas are often the main sources of landscapes, where public access to an area with natural qualities is available*. Around the big European conurbation's man-induced forests, even the most regimented can offer a vital *representation* of nature, albeit in a highly abstract form. In Iceland, even in the capital, tokens of wilderness are simply not necessary. The sense of nature is everywhere. The process of afforestation, far from giving people a rare glimpse of forests, probably has more to do at a symbolic level, with demonstrating control over the landscape. Where man co-exists, with genuine unease, with actual wilderness, a more robust and pragmatic relationship with the landscape applies. This rather different cultural position must condition the way Icelanders respond, in recreational terms, to new, non-native forest environments. It is perhaps telling that at Mogilsá, near Reykjavík, (the site of Iceland's other significant new generation forest and H.Q. of the Icelandic Forest Research) all routes to the top of Mt. Esja have, in the space of ten years, become critically eroded, while those through the forest on the lower slopes, have hardly been used at all. In the psychology of the Icelander, unlike his Scandinavian counterparts, there seems to be a lingering feeling by some that trees *obscure* rather than define the landscape¹.

1.5.2 Newly planted mixed woodlands

Forests are planted specifically for amenity and recreation. Notably in and around the capital Reykjavik are initiatives driven by the local municipalities, in conjunction with the different non-governmental volunteer organisations.

In the immediate Reykjavik vicinity however, the new recreational woodlands are seen more as local parks rather than wilderness. Several pilot schemes are beginning to establish with considerable success, and are intensively used by the local inhabitants throughout the year for a variety of activities such as walking, hiking, biking, jogging, walking the dog, family walks, nature walks, picnicking, fishing, horseback riding.

¹ (Results from a Telephone Survey carried out by IMG Gallup - on the behalf of The Icelandic Forest Service in August 2004, indicate however a "positive feeling" towards forest and forestry as a whole) <http://www.skog.is/utgafa/skogrit/documents/SherryHrefna.pdf>

2 Tourism and Environmental Threats

So far, Iceland's wooded environments, such as they are have been spared the wholesale ecological and physical degradation suffered elsewhere in Europe, due to intensive recreational use. Most at risk in the longer term are the surviving expanses of native woodland.

One of the greatest threats to the native forest is the tremendous increase in **vacation houses** in pristine natural landscapes. The most popular places for such development are the native birch forests and therefore it is extremely important to have a strong and clear conservation and planning legislature to protect the fragile forest ecosystems and control such development.

Another key problem associated with nature tourism in Iceland has been the explosion of **individual mobility**, given the recent mass ownership of 4W drive vehicles and improved roads. This issue however, does not relate to the use of forests for recreation (with the exception of Þórsmörk) which are otherwise protected by raging un-bridged glacial rivers. Following widespread scarring and damage to Iceland's fragile vegetation cover, legislation has been passed on off-road driving, making it illegal to leave the roads and formally marked paths, though this is proving virtually impossible to enforce. Wheel-damage can take decades to heal, and in severe cases can be a catalyst for wind erosion.

In 2000, foreign visitors to Iceland numbered as many as the inhabitants, 300,000 or approximately three per km² of land. Many foreign tourists are catered for by organised coach tours (down from 48% in 1996 to 35% in 2001), however an increasing number rent cars (up from 22% in 1996 to 40% in 2001) and mainly 4W drive for the adventure of encountering the wild on their own. These tourists are not properly aware of the regulations regarding off-road driving and greatly damage the fragile vegetation cover. Icelanders themselves are however, well aware of the risk and there has been a major improvement due to the actions of the NGO 4*4 (the 4W Drive Club) who have begun to realise that their love for SUV's and motor sports poses a large risk to the natural environment.

Another problem in Iceland is the travelling patterns of hikers and the availability of paths. Due to the special characteristics of the Icelandic soil and fragile vegetation coverage, laying hiking paths through vegetated areas imposes a great risk of soil erosion. In as little as three weeks after laying a path, damage can be already visible around the path due to extensive "hiking boot, hard-sole erosion" (*Thorleifsdottir, 2006*).

Forest recreation and forest-based nature tourism in Iceland are, like forestry itself, still very much in their infancy. There is no tradition of forest-based recreation outside of the girl and boy scouts and forestry NGOs. With reference to the above discussion of Icelandic forests or lack thereof, it is important to turn the focus more towards the recreational value of natural environments in Iceland in general. At this infancy level, the first problem that needs to be addressed is simply how to define natural environments, natural resources, and the ownership thereof.

3 The Need for Recreation Inventories

At this point in time, very little is known about outdoor recreation in general in Iceland, especially in natural settings. No governmental policy reports or other ‘official’ documentation directly discuss or point out the need for nation wide recreation inventories. Until now, Scandinavian models have been the only yardsticks, and these are hardly tailor-made for Iceland. Many governmental policy reports do however address the importance of nature conservation for recreation purposes.

4 Governmental Policies and Legislature

Outdoor recreation is usually discussed alongside nature conservation and is addressed in several local legislative acts e.g. the Environmental Protection Act no. 44/1999, the Environmental Impact Assessment Act no. 2000, the Travel Planning Act no. 1994/2005, the Planning and Building Act no. 73/1997, the Forestry Act no. 1955 (with further addition in 1966, 1984, 1989, 1997 and 1999), the Protection of Wild Birds and Mammals Act no. 64/1994, and specific acts for the establishment of several national parks such as the Thingvellir Protection Act no. 59/1928.

The Ministry for the Environment was founded in 1990 and is the youngest ministry in the Icelandic Administration. The ministry’s founding created the requisites for the government to formulate and enforce an integrated policy for environmental affairs. Environmental legislation has been reviewed with an eye to its consistency with the guideline of sustainable development. The ministry oversees activities including the affairs pertaining to nature in Iceland, conservation and outdoor recreation, the protection and management of sensitive flora and fauna, and environmental monitoring and surveillance.

In article 1 in the Nature Conservation Act no. 44/1999, it is stated that the purpose of the act is “*to direct the interaction of man with his environment so that it harms neither the biosphere nor the geosphere, nor pollutes the air, sea or water.*” The act also intends to “*ensure, to the extent possible, that Icelandic nature can develop according to its own laws and ensure conservation of its exceptional or historical aspects*” and that “*the Act shall facilitate the nation’s access to and knowledge of Icelandic nature and cultural heritage and encourage the conservation and utilization of resources based on sustainable development.*”

Several key word definitions of interest are provided in the Nature Conservation Act:

A country park is e.g. an area of land controlled by a local authority or local authorities, which has been protected for outdoor leisure and public use.

A wilderness is an area of land at least 25 km² in size, or in which it is possible to enjoy the solitude and nature without disturbance from man-made structures or the traffic of motorised vehicles on the ground, which is at least 5 km away from man-made structures or other evidence of technology, such as power lines, power stations, reservoirs and main roads, where no direct indications of human activity are visible and nature can develop without anthropogenic pressures.

Sites of natural interest are defined as *nature conservation areas and life forms, their habitats and ecosystems on the Nature Conservation Registry.*

Nature conservation areas are defined as **a.** *protected areas, i.e. national parks, nature reserves, country parks and natural monuments, b. other areas and natural phenomena on Nature Conservation Registry, cf. Article 67, and c. demarcated areas on land or at sea which are protected by other Acts due to their nature or landscape.*

National land is defined as “*an area of land not privately owned, even though individuals or legal entities may enjoy specific limited ownership rights there.*”

5 National Parks, Outdoor Recreation and Health

Conservation of nature is not only for the benefits of nature itself, but also for the people of Iceland and the growing number of foreign tourists that visit Iceland, mostly for the natural beauty and distinctiveness. It is of vital importance for the majority of visitors that they are able to experience nature, wilderness and wildlife.

In her speech at the National Parks, Outdoor Life and Health Nordic Conference, 2005, the Minister for the Environment stated that “*There is no doubt in my mind that protected areas, National Parks as well as other areas, where people can enjoy recreation in natural surroundings, greatly affect peoples health and overall well-being*”. The minister’s added that “*protected areas serve many different purposes, but first of all, they are protected to conserve biological diversity, ecosystems, geological formations and landscapes of exceptional beauty. The second objective, equally important, is the recreational, visual and spiritual value of unspoiled nature*” (Thordardóttir, 2005).

Boasting Europe’s largest wilderness areas, nature conservation is a priority in Iceland, although it is constantly competing with another focal priority, the production of “sustainable” hydro and geothermal power.

In 2003, the first comprehensive nature conservation plan was introduced. Today, there are 92 protected areas or sites in Iceland; 4 national parks which are protected by a special law, 36 nature reserves, 35 natural monuments and 12 country parks. The protected areas cover approximately 15% of Iceland. Skaftafell National Park, is Europe’s largest National Park, an area of 4,807 km² and a proposal has been submitted for the establishment of the 15,000 km² Vatnajökull National Park. Of special importance in the near future is the development of the uninhabited central highlands, which comprise about 40% of Iceland. There are pressures for more development of the area for both its renewable energy resources and for tourism purposes.

The comprehensive plan for the central highlands and a master plan for hydro and geothermal energy resources in Iceland are intended to integrate these demands with nature conservation concerns. The steering committee was established in April 1999 and the working groups in February 2000. The results from the first phase were introduced in 2003 covering 20 sites, 11 sites for proposed hydro power plants and associated dams and eight sites for proposed geothermal power plants. Lack of research and geographical mapping resulted in the postponing of the evaluation of several sites. The work is now into the second phase, focusing on research on natural resources and phenomena, landscape assessment, evaluation of possible power production and nature conservation. Emphasis has so far been placed on advancing the methodology used and the development of criteria for value scales. Final results are expected in 2009.

Tourism is a growing industry in Iceland. Apart from pure nature, **health** is becoming a strong marketing tool. Many places in Iceland boast rich natural resources that may be used in promoting healthy living e.g. physical activity in nature and resources such as geothermal water, silicon and clay. In the uninhabited areas, natural pools have become major attractions to tourists (places such as Landmannalaugar, Strútslaug, the lake Mývatn area and many others). Open-air swimming pools and springs with warm geothermal water and the production of health cosmetics have now become marketing tools in Iceland as referenced from many recent tourism commercials for the city of Reykjavík.

6 International Co-operation

International co-operation is key to environmental affairs since the environment is a global concern.

The general policy formulation on recreation and nature tourism demand seeks foundation in the **Rio Conference** on the environmental affairs and sustainable development in 1992. The Icelandic government adopted a revised sustainable development strategy “Welfare for the Future” in August 2002. Iceland has ratified the **Kyoto Protocol** and has adopted a national implementation strategy to meet the emissions limits for greenhouse gases set out in the protocol.

The Ministry of the Environment participates in the environmental efforts of many multi-national organisations, such as the United Nations, the Council of Europe, the OECD, and Nordic collaboration - the Nordic Environmental Policy, and the national report on natural resources (*Oddsson, 2000*). Emphasis on the environmental protection of the Arctic has grown in recent years. Iceland hosts two offices under the auspices of the Arctic Council, which oversee the protection of the biosphere (CAFF) and marine environmental protection (PAME).

7 Science-based Analysis of the Need for Recreation Inventories

Very limited research exists on recreation and nature tourism apart from the annual reports from the Icelandic Tourist Board on tourism figures, which report separately on Icelandic and foreign visitors.

Recent research on the carrying capacity of the natural environment (visitor impact) and the social capacity of tourists and inhabitants indicates a turning point in nature recreation research. For example, see the reports on the carrying capacity of tourism in the national park at Skaftafell (*Sæþórsdóttir, Gísladóttir, Ólafsson, Sigurjónsson, & Aradóttir, 2001*), in Landmannalaugar (*Aradóttir, Sæþórsdóttir, Gísladóttir, & Ólafsson, 2003*), and in Lónsöræfi (*Aradóttir & Ólafsdóttir, 2003*). The research is primarily based upon four key points; 1. the infrastructure, planning, and management of tourism, 2. visitors experiential perceptions, 3. inhabitants views of local tourism, and 4. research on the natural environment, ecosystems, vegetation, and soils. A variety of qualitative and quantitative research methods have been used, such as questionnaires, travel logs, interviews, and site observations, with a range of sample sizes and number of participants dependent on the methods used.

The conservation-recreation issue is also addressed in most comprehensive planning documents at municipal and regional levels and a few studies have been conducted in Reykjavík e.g. in the Elliðaárdalur and Heiðmörk nature parks in the city's vicinity. The results show that 70% of city dwellers use these natural areas. The main determinants identified, apart from socio-economics, were distance from home and the most frequently mentioned activities mentioned were walking/jogging (66.3%), spending time with the family (22%), driving around (18%), nature observation (11.5%) and various activities such as picking mushrooms, biking, horseback riding, and walking the dog (13%).

8 Expected Impact of COST Action E33 on Recreation Research in the Country

It is hoped that the participation in COST E33 will

- a) provide a review of existing knowledge - state of the art and
- b) emphasise the need for recreation inventories in Iceland.

At the time of writing this status report, a research proposal has been submitted and accepted at a local municipality; **Gardabaer**, the first of its kind in Iceland.

Purpose: The purpose of this research is to meet an increasing need for an inventory of recreation needs and to develop a tool that can assist in future comprehensive town/regional planning.

Goal: The main goal in this research is to study seasonal usage of natural areas in the vicinity of the town of **Gardabaer**, and to identify user needs for a variety of nature-based recreation. The town's categorical planning system and area boundaries are used to identify sixteen research areas that fit the criterion of this research. The research units cover approximately 26 km² of natural areas or 63% of the town's total land area.

Methods: Data will be gathered in two phases. First, a questionnaire will be placed on the town's website, which has been especially developed to encourage public participation through e-democracy. A notice with an access keyword will be sent to individuals who have access to the website (around 3000 people (approximately 1/3 of the total population)). The questionnaire will be followed up with a set of open public meetings with a number of special user groups such as several NGOs, schools, recreation groups etc. to explore other possible contextual influences, uses, and needs.

Results: It is expected that the results will lead to a new understanding of peoples needs for nature-based outdoor recreation. The results will be used to design a special model demonstrating the needs of individuals and groups that can be used to propose priorities for health promoting changes in comprehensive town/regional planning and the design of recreational facilities in natural areas. The findings, along with information on the recreational opportunities of the sixteen areas, will also be published in a brochure that will be distributed to the public.

Finally, this Cost Action based research will be used to reach out to other municipalities in Iceland and thus step by step collect recreational inventory data for monitoring at a national level.

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Ireland

COST E33 WG2 Country Report

Recreation and nature tourism demand, supply and actual usage

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1 Introduction

1.1 General description

The island of Ireland is situated in the extreme north-west of Europe (longitude 5.5° to 10.5° west; latitude 51.5° to 55.5° north). The island comprises a large central lowland of limestone with a relief of hills, and several coastal mountains. The island's total area of 84,421 km² (Republic of Ireland 70,282 km², Northern Ireland (UK) 14,139 km²), and measures 486 km (N-S) and 275 (E-W). Influenced by the Gulf Stream and the prevailing south-westerly winds from the Atlantic, the climate of Ireland is equable and are fairly uniform over the whole country. Mean temperatures vary from 4-7° C (for January and February) to 14-16° C (July and August). Average rainfall is 800-1,2000 mm, rising to 2,000 mm in mountainous areas.

The 2002 national censuses recorded the population in the Republic of Ireland as 3,917,203, reflecting an ongoing trend in population growth arising from increased birth rates and immigration. A high portion of the population is also concentrated in the younger age groups. The major centres of population are Dublin, Cork, Galway, Limerick and Waterford. Approximately 60% of the population live in cities and towns of 1,000 people or more, reflecting the rapid urbanisation of Irish society in recent decades.

Ireland has enjoyed considerable economic growth in recent years, popularly represented as the 'Celtic Tiger'. Important sectors are industry (high-technology manufacturing, pharmaceuticals, engineering) and services (financial services, telecommunications, tourism). Although in decline, agriculture still represents an important sector of the Irish economy, based on cattle raising and dairying, livestock and livestock products, and various tillage crops.

The following are general factors that have a bearing on the development and use of forests for recreation and nature tourism.

- Recent studies have shown a concerning increase in the incidence of heart disease, obesity (particularly amongst children) and other detrimental health issues arising from, among other factors, a lack of regular physical exercise. **Physical exercise is a central component of the**

Government's overall health strategy, and several major initiatives are ongoing to promote physical exercise, e.g. 'Let it Go, Just for 30 Minutes' physical activity campaign launched in July 2003, and the Slí na Sláinte network of walking routes established by the Irish Heart Foundation specifically to promote walking exercise. The promotion of public health is becoming increasingly recognised as an important role for Irish forestry, through the provision of attractive and accessible recreational forests.

A major national debate is currently ongoing in Ireland surrounding the issue of access to the countryside. Ireland's countryside is ideally suited to a wide range of outdoor recreational and leisure pursuits (hill walking, mountaineering, angling, canoeing, equestrian pursuits, camping, etc.), and developing this market will produce significant returns in terms of rural development and economic activity, particularly relevant in the context of the revised EU Rural Development Programme. However, progress in the area over recent years has been stalled, and in some cases reversed, by an ongoing debate that is repeatedly polarised around the issue of the landowner's right to privacy versus the hill walker's demand for access. Surrounding issues include legislation regarding occupiers duty of care, public liability insurance, compensation to landowners for allowing access, and the development of a countryside code. Considerable effort has been made to address these issues with a view to realising the potential of Ireland countryside for outdoor recreation, under the auspices of Comhairle na Tuaithe (The Countryside Recreational Council), established in January 2004 by the Minister for Community, Rural and Gaeltacht Affairs. This group includes many of the key organisations involved in outdoor recreation in Ireland, including farmers organisations, tourism, heritage and forestry bodies, and recreational user groups.

1.2 Forestry in Ireland

Natural woodland gradually colonised the post-glacial landscape of the island of Ireland after the last Ice Age, ultimately covering an estimated 95% of the landmass. Species included willow, birch, hazel, elm, oak, Scots pine, alder and ash. While the first humans arrived during the Mesolithic period, c.7,000 BC, the first significant signs of forest clearance began with the transition to the Neolithic, c.4,000 BC. Progressive clearance down through the centuries, together with climate change and the subsequent growth of bog, led to the loss of forest cover over extensive areas of Ireland. This was exacerbated in recent centuries (due in part to the subsistence farming practices under the landlord system), resulting in a mere 1% of land cover under forests at the start of the 20th century.

In response to the lack of forest cover, the first State forestry programme was inaugurated in 1903. State planting followed at a relatively low level (1,500 to 3,000 ha/year) up until the late 1940s. At this point, the emphasis switched to the acquisition of land unsuitable for agriculture, with a planting target of 10,000 ha/year. This target was reaffirmed in 1964, with the over-riding objectives to provide sawn softwood in times of emergency, and to provide and maintain rural employment.

The beginning of the 1980s saw the emergence of co-funded private planting with EU and government incentives. The Western Package programme, established in 1983, saw farmers taking areas of their holdings out of mainstream agriculture and planting them for commercial forestry. Coillte Teoranta – the State Forestry Board – was established in 1989 effectively to manage the public forest estate built up since the commencement of state planting. In the early 1990s, the first nationwide Operational Programme came into being. In 1996, *Growing for the Future*, a strategy plan for the development of the forestry sector in Ireland, was published. This document has shaped forest policy since, with its stated overall aim being “to develop forestry to a scale and in a manner which maximises its contribution to national economic and social well-being

on a sustainable manner and which is compatible with the protection of the environment.” This strategy sets out a variety of targets aimed at achieving a ‘critical mass’ by 2030, including an annual afforestation target of 20,000 ha.

Since the implementation of Growing for the Future in 1996, planting has averaged at 14,000 ha/year, 90% of which by farmers. Private forests now comprise 42% of all forests in Ireland (with the remainder largely under Coillte ownership – see below), reflecting the growing importance of private woodlands and forests in the make-up of the national forest estate.

Irish forestry policy is built on the principles of Sustainable Forest Management (SFM), as established at the Third Ministerial Conference on the Protection of Forests in Europe (Lisbon, 1998). Various instruments are in place to drive these principles, including the Irish National Forest Standard, Code of Best Forest Practice – Ireland, a suite of environment guidelines, national legislation (including the Forestry Act 1946), and the enforcement of grant procedures and standards by a Forestry Inspectorate.

2 Forest recreation and nature tourism in Ireland

2.1 Forest Service

The Forest Service (Department of Agriculture and Food) is the national forest authority and is responsible for forest policy and the promotion of private forestry. It administers forestry grant schemes on behalf of the Government and is responsible for forest protection, the control of felling, and the promotion and support of research in forestry and forest produce. The Forest Service plays an important role in the promotion of forest recreation in Ireland, as described out below.

The strategic plan set out in Growing for the Future recognises the role of forests in providing amenity and recreation. The policy statement in relation to amenity and recreation is “to encourage the provision of public access to forests, having regard to the rights of owners, and the development of amenity forestry projects of local social and economic benefits.” Strategic actions are based on the provision of grant aid to encourage the development of recreation forests, support for initiatives that promote public appreciation and enjoyment of forests, and the promotion of acceptable and sustained standards of maintenance of forests and facilities used for recreation.

A review and appraisal of the strategy by economic consultants, published in September 2004, places particular emphasis on non-timber forestry outputs, included recreation and leisure. This study estimates the current value of leisure and recreation within the forestry sector at €37.6 million, with the potential for up to €79 million – without further growth in visitor numbers – if adequate mixed species forests and facilities are provided. It is likely that government policy moving forward will place further emphasis on the provision by forests of recreation as a form of public service, particularly within the context of changes in the EU Rural Development Programme. Cross-governmental issues such as national health strategies to tackle rising obesity, are also likely to support this trend.

As part of SFM, the provision of recreation and related services by Ireland’s forests is a key part of national forest policy, and is enshrined in the Irish National Forest Standard.

The proactive encouragement of the development of forest recreation by the Forest Service has been undertaken in the following ways.

- The NeighbourWood Scheme, launched in 2001, provides grant aid for the development of attractive woodland amenities for public access and enjoyment, primarily in and around towns and cities. This support, which provides funding for woodland establishment, woodland improvement and facilities, has led to a large number of projects throughout Ireland involving local authorities, local community groups, environmental NGOs and landowners. Examples include Beleek Wood (Co. Mayo), Belvedere Estate and Gardens (Co. Westmeath), Devil's Glen (Co. Wicklow), Balrath (Co. Meath) and Newcastle West (Co. Limerick), and elements of the Terryland Forest Park (Galway City). The NeighbourWood Scheme evolved from previous grant schemes designed to promote forest recreation, namely the Planned Recreational Forestry Scheme and the Urban Forestry Scheme.
- The Forest Service is currently developing a publication aimed at encouraging forest owners and managers to provide for some level of recreation within their forests, and at providing practical information and advice on related issues. The document, entitled *Forest Recreation in Ireland - A Guide for Forest Owners and Managers*, is based on detailed consultation with relevant organisations and experts, and is due to be published over the coming months.
- The Forest Service has also supported over recent years a wide range of organisations undertaking various initiatives and programmes designed to promote amongst the general public the value of Irish woodlands and forests, including their use for recreation. Such organisations include the Tree Council of Ireland, Peoples' Millennium Forests, Sculpture in Woodland, the Tree Register of Ireland, Crann, Conservation Volunteers Ireland and ECO UNESCO.

2.2 Coillte

Coillte Teoranta – the State Forestry Board was established in 1989 effectively to manage the public forest estate built up since the commencement of state planting. Coillte is a commercial company operating in forestry, land-based businesses and forest products. It owns over 1 million acres of land or approximately 7% of Ireland's total land area, making it the largest single landowner in the country.

Although established with a commercial mandate, Coillte is the largest provider of forest recreation in Ireland, and is playing a active role in promoting the area. Coillte's commitment to recreation is underpinned by obligations arising from the certification of its operations by the Forest Stewardship Council (FSC).

Coillte operates an open forest policy within its estate, whereby the general public are welcome to use forest land for non-commercial, informal, recreational purposes and in particular, the areas that are developed as amenity areas. Formal permission is not required for these purposes but access is subject to visitors taking due care for their safety and respecting the nature of Coillte's commercial operation and also its rights as a landowner. Non-commercial, organised activities such a school walks, scientific studies and local amenity development initiatives are allowed under permit, and appropriate insurance cover, by application to the company. Commercial activities such as pony trekking, and other sporting or cultural activities are allowed in selected forests. Permission is given under licence and is subject to a number of conditions concerning the activity, the particular location and safety issues. These activities are subject to a fee. Coillte endeavours to ensure that conflicting activities are not allowed in the same area and that all activities are consistent with good silviculture and environmental policies.

Within its estate, Coillte also maintains 11 Forests Parks around the country, most of which provide facilities such as toilets, parking, picnic sites, playgrounds for children, and a shop or restaurant (seasonal). Examples include Lough Key Forest Park (Co. Roscommon), Avondale Forest Park (Co. Wicklow) and Portumna Forest Park (Co. Galway). The company also operates 150 recreation sites around the country most of which provide basic facilities such as parking, picnic sites and walking trails.

In May 2004, Coillte published a draft policy document on recreation, setting out the role and operational policies that management will follow in delivering recreation on the Coillte estate over the next 10 years. The document is structured into four key sections:

- *General policy statement* This section sets out the rationale for, and value of, forest recreation provided by Coillte (“...Coillte forests deliver recreation value of the order of €15.89 million annually...”).
- *Management issues* This section deals with visitor safety, facilities, planning recreation, user environmental codes, access for all, etc.
- *Resources* This section looks at developing partnerships and using volunteers to deliver recreation services.
- *Operational policies* This section sets out operational issues surrounding the various recreation and leisure uses of Coillte’s forests, including hiking, recreational fires, camping, mountain biking, water sports, equestrian, motor sports and hunting.

The subsequent adoption of the above policy by the Coillte board has further strengthened Coillte’s commitment of providing for forest recreation and leisure.

Coillte is also actively involved in various groups promoting forest and outdoor recreation in Ireland, including Comhairle na Tuaithe, Leave No Trace group, and the Irish Sports Council.

2.3 COFORD

COFORD – the National Council for Forest Research and Development – administers funding for R&D projects, networking and knowledge transfer in the Irish forestry sector, and publishes research results to aid policy formulation and industry development. COFORD is currently undertaking a mid-term review of forest recreation and related sectors, with a view to stimulating research focused on key areas such as the evaluation of recreation and other public goods and services, landscape issues, recreational management, urban woodlands, education, and rural development. While work is ongoing, it is envisaged that this review will firmly establish forest recreation as an element of the national forest research programme.

2.4 National Parks and Wildlife Service

The National Parks and Wildlife Service (NPWS), part of the Department of the Environment, Heritage and Local Government, manages the State’s nature conservation responsibilities under national and European law. NPWS is charged with the conservation of a range of ecosystems and populations of flora and fauna in Ireland. A particular responsibility of NPWS is the designation and protection of Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Natural Heritage Areas (NHAs).

In relation to forests for recreation and nature tourism, National Parks and Nature Reserves are areas designated for nature conservation and are, in almost all cases, entirely owned and managed by NPWS. As such, they constitute the most strictly protected conservation areas within the State. There are currently six National Parks in Ireland, which combined, cover just over 59,000 ha. They have an amenity, educational and research function, in addition to the primary objective of wildlife conservation. The amount of woodland cover within National Parks varies. For example, Killarney National Park contains over 1,000 ha of semi-natural woodland, mostly acid oakwood. The Burren National Park contains extensive areas of hazel scrub associated with limestone pavement. Smaller areas of acid oakwood are contained within the Connemara, Glenveagh and the Wicklow Mountains National Parks. Each National Park is accompanied with a visitor interpretive centre, booklets and leaflets, and signposted trails. Various educational programmes are also run for visitors, including guided walks.

Nature Reserves are usually smaller areas (up to 100s of ha). There are approximately 33 reserves that contain woods of conservation value.

2.5 Local Authorities

Local authorities in Ireland, particularly around the major cities, own and manage a number of sizeable public parks for public access and amenity, many with notable areas of woodland. For example, South Dublin County Council, one of four local authorities within the greater Dublin area, manages approximately 4,000 acres of public parks and open spaces under its Parks and Landscape Services Section. These include four large regional parks (Tyron Park, Corkagh Park, Griffen Valley Park and the Dodder Valley Park) and approximately 50 neighbourhood parks, many of these include areas of woodland cover. The importance of such woodland in terms of recreation is heightened by their access to sizeable urban populations. For example, the population of the South Dublin County area is approximately 250,000.

Other local authorities with significant areas of public parks include Dublin Corporation, Dún Laoghaire-Rathdown County Council, Fingal County Council, and local authorities associated with major cities of Cork, Galway, Limerick and Waterford.

2.6 The Tree Council of Ireland

The Tree Council of Ireland is an umbrella body representing over 40 organisations with an active interest in promoting trees and forests in Ireland. Over 40 organisations are represented, from statutory bodies including the Forest Service, National Parks and Wildlife, Teagasc and Local Authorities, to professional organisations such as the Society of Irish Foresters, Ireland's Woodturners Guild and the Irish Bee Keepers Federation, and non-government organisations such as Crann, Conservation Volunteers Ireland and Just Forests.

Since its establishment almost two decades ago, the Tree Council has been involved in a wide range of initiatives and activities that have contributed greatly to the promotion of a tree and woodland culture in Ireland. Many of these activities are based on the encouragement of people to visit local woodlands and forests. They include the various activities surrounding National Tree Week and National Tree Day, the provision of an outdoor forest classroom in Balrath Wood, Co. Meath, the publication of attractive guides on forest walks

With funding from the Forest Service, the Tree Council has also been active in providing professional advice, support and training in the area of urban woodland and forest recreational development, through its Urban Forestry Programme, 'Designing for Forest Recreation' training courses, and its series of National Urban Forestry Conferences during the 1990s.

2.7 Office of Public Works

A number of heritage sites comprising parks and gardens, relevant to the area of forests for recreation and nature tourism, are held and management by the Office of Public Works (OPW). Examples include Dromore Wood (Co. Clare), Phoenix Park (Dublin City), The John F. Kennedy Arboretum (Co. Wexford).

2.8 Private woodland owners

A wide range of private rural tourism-based enterprises are in operation throughout Ireland which incorporate some aspect of forest recreation and nature tourism, either as a core component or a related component of the enterprise. These include hotels, holiday accommodation, golfing and equestrian centres, outdoor and adventure centres, caravan and campsites, enterprises based on alternative living skills, etc.

2.9 Other groups/initiative relevant to forests for recreation and nature tourism

- Ongoing work within the Irish Sports Council and the National Waymarked Ways Advisory Committee to develop an Irish Trails Strategy in 2005. Ongoing work includes a national wide audit to capture and provide a valuable baseline information on all developed and managed walking, cycling, horse-riding and water/paddle trails in Ireland.
- Leave No Trace group, currently developing proposals for an all-Ireland countryside code based on the Leave No Trace principles.
- Support from the Department of Community, Rural and Gaeltacht Affairs under the LEADER programme, the Rural Social Scheme and the Rural Development Fund, with possibilities for funding for the development of rural tourism and recreation initiatives.
- Irish Uplands Forum

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The Netherlands

COST E33 WG2 Country Report

Recreation and nature tourism demand, supply and actual usage

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1 Introduction

1.1 Landuse

The Netherlands ranks among the smaller countries in Western Europe. It is one of the most densely populated countries in the world. The Netherlands counts 16.2 million inhabitants. Almost 70% of the country is agricultural area. Nearly 15% consists of nature areas (and forests). 0,03 ha or 300 m² per inhabitant. From other sources than the land-use statistics the area forest and nature seem to be somewhat higher; at least 550,000 ha.

Table 1. Land-use (2000)

	Hectares	Percentage
Forest and nature	483.463	14,3%
Agriculture	2.327.046	2,6%
Recreation*	88.877	68,9%
Infrastructure	113.039	3,3%
Semi-built	48.573	1,4%
Built	318.330	9,3%

* for instance parks, sports fields en recreational residences

1.2 Nature

Ownership and maintenance of nature and forest areas lies with many categories of owners. The State Forest Service owns the largest area, not only forest but also many nature areas. Other important nature conservation organizations are Natuurmonumenten and de 12 'Provinciale Landschappen': both have around 85,000 ha in property. Private owners are also an important category: together they own around 135,000 ha.

Major problems in nature conservation management in the Netherlands are: fragmentation, fertilized and acid soils and nature areas running dry. Climate change is receiving increasing attention.

In rural areas but also in and around cities, for the government sufficient room for nature is important. This is important for nature itself, as well as for the Dutch people. Dutch nature policy aims to ensure that people can enjoy nature and that nature is preserved for future generations. As much forests and nature as is possible (apart from serious reasons of ecology, privacy or safety) should be accessible for recreation. To provide room for nature the government wants to protect existing nature and promote the development of new forest and nature areas. Also the government wants to preserve and develop other valuable landscapes. Farmers who have traditionally determined the face of the Dutch landscape play an important role. They are asked to participate in nature management and measurements that will make the landscape more attractive. Also other private land owners are stimulated to do something for nature conservation.

A basis principle of the Dutch nature policy is to realize a National Ecological Network (EHS). About 750,000 hectares are appointed under this EHS. The EHS is part of the Natura 2000 Network. Nature can be protected as part of the EHS, as area under the European Bird- and Habitat Directive or the Dutch Nature Conservation Act. For nature, education and recreation purposes there are quite a lot of areas appointed as National Parks (20). These are areas of at least 1,000 ha and form core areas in the EHS.

The 'Nota Ruimte' (2004) introduced the concept of National Landscapes. Promotion of increase of nature and other green areas around the 30 largest cities in the Netherlands takes place in the Green in and around Cities impulse (Groen IN en Om de Stad, GIOS)

In the Netherlands forests nowadays are mostly viewed as part of nature. There is no specific forest policy, the forest policy is integrated in nature policy (Nota Natuur voor mensen, mensen voor natuur). Forests are important in the Dutch plans for nature. Nearly all existing forest is part of the National Ecological Network.

1.3 Forests

Nearly 360,000 hectares of the Netherlands are covered with forests (10%). This percentage of wooded land is not very high compared to many countries in Europe. Most of the Dutch forest is 'opgaand bos'. The share of shrubs, coppice, wooded avenues and other kinds of wooded areas is a few percent. Because many forests are planted between 1920 en 1950, the country doesn't have many old forests. A lot of forests are small and there are not many large connected forest complexes. 70,000 hectares consists of areas less than 5 ha.

The most important tree species in the Dutch forests are Scotch pine (*Pinus sylvestris*) and secondly, Oak (*Quercus robur*). For 37% of the forest area Scotch pine is the most important species of a stand. Most of the forest is coniferous, but the broad-leaved part is increasing. In the last few decades nature conservation have been trying to increase the share of broad-leaved trees in the Dutch forests. Especially exotic coniferous species have been making room for species as oak, beech, alder and ash. Also managers have a lot of attention for increasing mixed forests (more species, more age categories).

Table 2. Forest ownership.

	Hectares
State forest Service	92,000
Other public authorities (national government, municipalities and others)	81,000
Nature conservation organizations	54,000
Private owners	114,000
unknown	18,000
Total	359,000

Ownership of forests lies with many categories of owners. More than 50% of the forest area is owned by public authorities. The State Forest Service (Staatsbosbeheer) owns most. The other half is owned by nature conservation organizations and private owners. Within the ownership categories there are many owners. There is a lot of small-scale ownership, especially with private landowners. 60% of forest owners own about 5% of the forests.

Increasing the area of forest in the Netherlands is a policy-goal of the Dutch government, because of social and ecologic reasons. The goal was to reach 400,000 hectares in 2020, especially in urbanized regions, by means of –for instance - nature development and afforestation of agricultural lands. This goal was altered in 2004. Out of financial motives the accent of the national government now lies on national priorities: increasing forest area in locations pointed out as National Landscapes or nature areas in the National Ecological Network. Other authorities can promote forest area increase in other locations.

In the Netherlands forests are important for several purposes: recreation, timber production, nature and landscape. The government aims at multifunctional forests where all functions get attention. In the subsidy-regulations multifunctionality plays an important role. In practice especially nature and recreation get attention nowadays.

In the last years a management system is increasing in importance: 'geïntegreerd bosbeheer' (integrated forestry management?). This management system is aiming at increasing nature values and improving recreational possibilities, combined with economically interesting timber production. Natural processes are a basis principle and measurements are of a small-scale character. Large scale clear-cuts don't fit in this system.

The major part of timber and timber products in the Netherlands is imported; only a small portion, less than 10 per cent, of the Dutch demand is produced in the Netherlands. Low prices and increasing costs are reasons for the limited harvest.

2 Recreation and tourism in forest and nature

2.1 General description

Investments of the national government, but also provinces and municipalities are for example in buying and laying out new recreation areas and nature, recreational infrastructure and facilities and other impulses in quality. The Ministry of Agriculture, Nature and Food Quality expects of

the State Forest Service as much accessibility of nature as is possible and finances recreation investments. Subsidy schemes for nature have conditions on recreation accessibility.

2.2 Supply- Accessibility

A large survey of Stichting Recreatie (2004) studied the accessibility of the nature and forests of the four largest forests and nature areas owners. All areas of at least 5 hectares were included (405,000 ha in total). The study shows that 77% of the areas of this ownership categories is accessible for recreation and another 7% is (made) highly apt for visual experiences. There are differences between the organizations studied: the State Forest Service (Staatsbosbeheer) shows the highest accessibility for recreation and the Ministry of Defence the lowest. Also there are differences between nature types: forests are made more accessible than other types and wet nature types are less accessible than drier types.

In 2005 the opening of the remaining forests and nature areas in the Netherlands were studied using a survey among the (smaller) owners of forest and nature areas: municipalities, private owners and organizations. An overall national picture was given on base of subsidy requests for nature conservation. In this national subsidy scheme ‘Programma Beheer’ recreational accessibility is a condition for getting subsidy, although there are exceptions possible. This shows that 85% is accessible for recreation. Municipalities know the highest accessibility. A survey took place about the property around the 30 largest cities in the Netherlands. For the government recreational accessibility around this cities is very important.

Recent forest statistics (‘Meetnet Functievervulling Bos) also have attention for recreational aspects. In this research it shows that 73% of Dutch forests is accessible on paths and 5% is fully open. Almost 18% is not accessible. In some parts access is temporarily prohibited or a ticket or membership is necessary (MFV Bos, 2002)

Table 3. Opening of areas of at least 5 ha of the 4 organisations according to category in 2003 (ha)

	ha	%
Fully open	35,543	9
Paths only	256,485	63
Limited access*	3,283	1
Temporarily open	16,005	4
Highly apt for visual experiences	27,518	7
Cutoff/closed	66,278	16
Total	405,135	100

* membership or entry-ticket necessary

2.3 Supply - Amounts of green areas

Research Institute Alterra looks into quantity of attractive green areas compared to recreational needs. Many studies calculate shortages, especially in some densely populated regions and some regions were there’s not a lot of nature area.

In 2003 an Alterra-study studied the quantity of green areas (parks, sport fields, forests and so on) around the ‘big 30’ (30 largest cities: G30) (Bezemer en Visschedijk, 2003). This amount was

divided by the amount of houses. In the Netherlands a guideline-value is 75 m² per house. 12 of the G30 show lower values. When taking 0,5 km around the cities every city passes.

Many Dutch people think they have not enough forests in the vicinity of their homes. In some parts of the country, for instance the Randstad, this even applies for 60% of the inhabitants (Intomart/Reneman, 1999)

2.4 Supply – suitability

Suitability of green spaces in a overall picture are also looked into in various studies. Especially suitability of areas for hiking and cycling are studied. ‘Experience surveys’ show that the most important aspects for recreationists are land-use, possibilities for hiking/cycling, distance to house, accessibility, quietness, relief and banks. Especially some areas in the Randstad get low scores for suitability. Some areas in the Northern provinces are far more suitable for cycling than for hiking.

2.5 Recreational activities in the Netherlands

Many studies about recreational activities show us hiking and cycling stay very popular activities. Participation and frequency are substantial.

From the national Day-visit survey (2001/2002) we know that the Dutch undertake almost 1 billion daytrips (2 hours or more) a year. Sports and sportive kinds of recreation, as hiking and cycling, are the most popular daytrips. About 60 million are hiking trips and almost 50 million cycling trips. After this category going out is the biggest. The Continuous Holiday Survey (Continu Vakantie Onderzoek, CVO) looks also into activities. Hiking is the most popular holiday activity, followed by going out for dinner and going for a ride. Next to hiking swimming and cycling are undertaken the most as sportive activities.

In 2004 a new survey started: Continuous Leisure Survey (Continu Vrijetijds Onderzoek, CVTO). In this survey activities undertaken in free time are studied (one hour or more, outside home). More than one of five activities undertaken consist of shopping for fun. 20% of the free time activities are outdoor-recreation. Number 3 of the top-3 activities is sports. In 2004 4,6 miljard activities are undertaken.

2.6 Recreational activities in forests and nature areas.

In forest and nature areas most people go hiking and cycling. Surveys in various nature areas show us that. Enjoying nature is the most important reason for visiting nature. Other important reasons are to undertake activities and to enjoy quietness and that’s not crowdy.

2.7 Recreational preferences

Various studies found a high recreational preference for enjoying nature and other green areas. An important study in 1999 shows that forests were the most popular natural areas, followed by coastal areas. Dutch like landscapes with forest, relief, water and diversity. This is also reflected by actual usage.

2.8 Visits to forest and nature

Research of the Social and Cultural 'Planbureau' found that many people participate in visiting nature. A smaller part visit it in high frequency. The national Day-trip survey (Statistics Netherlands) shows us that forest and moors are the most popular surroundings for many outdoor activities (day trips) as hiking, cycling and horse riding. The 'ContinuVakantieOnderzoek' (ContinuousHolidaySurvey) studies holiday behaviour. The holiday environment is also registered. Here too we can see that forests and moors are very popular for domestic holidays.

Table 4. Visitation in different types of areas.

	Participation	Frequency minimum 1/month	Frequency < 1/month
(protected) nature area	35%	6%	30%
City park or urban forest	41%	17%	24%
Recreation area	43%	10%	33%
Forests, moors, agricultural lands and waters	67%	25%	42%

(SCP, 1999)

Table 5. Day-trips in the Netherlands according to the day-trip environment, 2001/02

	City, village	Agricultural area	Dunes, beach, seaside	Forests, moors	Lakes, rivers	other	Total
	%						× 1,000
Day-camping etc.	22	5	8	46	13	6	4,743
Going for a hike	17	9	13	51	6	4	55,531
Biking	17	29	8	38	10	4	47,830
Horse riding	18	30	2	32	1	10	3,519
Running, fitness	24	10	18	51	3	7	3,782
Going for a ride	30	28	6	46	8	6	19,036

(NRIT, 2003, bron: CBS)

Table 6. Holidays by the Dutch population (appr. 16 million inhabitants) by holiday environment in 2003

× 1,000	Domestic
Beachside, seaside, dunes	3,983
Hills	914
Mountains	27
Lakes, ponds, rivers, canals etc.	1,712
Forests and/or moors	7,288
Cities	1,279
Countryside, polder etc.	2,413
Other environments	474
Total	18,091

3 Demand, supply and usage - research

3.1 The need for recreation inventories

In a densely populated country as is the Netherlands, the government has much attention for spatial issues. Outdoor recreation is one of the subjects that's important in this scope. Recreation is considered good for health and well-being. Outdoor recreation activities, especially hiking and cycling, are very popular with the Dutch population for many years. Both in policy as well as in research, questions of quantity of green space for recreational purposes (close-to-home) has been and still is an important theme in the Netherlands. This green space for recreation is found in existing recreation areas and nature and in new nature and recreation areas and by making the agricultural area more attractive for recreational purposes.

With regard to outdoor recreation the policy of the Ministry of Agriculture, Nature and Food Quality and the Ministry of Public Housing, Spatial Planning and Environment are the most relevant. The Ministry of Transport and Water looks into issues of mobility and water recreation. The Ministry of Public Health, Well-being and Sports is responsible for related themes such as stimulating physical activity, but mainly focuses on sports and not on outdoor recreation.

In national policy documents there's not that much attention for importance of recreation research in general, or research on outdoor recreation in forest and nature in specific. However, policy making certainly uses research information on issues such as (changes in) demography, recreational preferences and needs of different groups in society and quality of the recreational supply. Sometimes Policy Action Programmes mention certain kinds of research to be carried out. Also on regional level there's need for information on demand and supply, because there's much going on on this level and in many processes of policy making and planning can be necessary.

The Ministry of Agriculture, Nature and Food Quality finances much research, also research on outdoor recreation. IN many cases, research themes and projects are placed under Research Programmes. In this case, important research institutes are Wageningen University and Research Centre (Alterra, LEI-DLO and some others) and Stichting Recreatie, expert centre on recreation. The last few years major research themes are accessibility of agricultural area and water banks (and other private lands in the rural area) for recreation purposes, recreational needs of city-people with regard to the rural area, recreational needs of important groups in future society (ethnic groups, older people), economic and social contribution of recreation and tourism to the rural (mostly agricultural) area. As we can see, possibilities for recreational use of the rural (agricultural) area are of much current interest. Recreational use of forest and nature areas still gets attention of course but much research focus is on this. In the Netherlands multiple use of land is essential. Forest and nature are in many times accessible for recreation and have all kinds of facilities. Problems such as inaccessibility or low attractiveness and big opportunities mainly lie in the agricultural area. With regard to forest and nature a current theme is recreation/holiday accommodations in protected nature area (Dutch EHS, Natura 2000): how many cases, in what cases there is really a problem, how can the government deal with it, are there possibilities for transfer? Health benefits of green areas are also looked into more and more, which can stimulated the use, provide arguments for investments and maybe involve other parties with realising green area.

As said before spatial issues get much attention, such as: what amount of green area is needed and where? Where the quality for recreation (in relation to needs and preferences) is satisfying and

where it is not? To answer these questions not only recreation data are important but also data on population growth and so on.

Topics that will stay interesting for government and others are recreational use/behaviour, needs and preferences in general and trends in this behaviour, needs and preferences (demand). Also with regard to specific areas such as forests and nature. Insight gives possibilities to better or optimise the quality of recreational supply. Governmental bodies are important customers of data of Statistics Netherlands and of the Continuous Holiday Survey and the Continuous Leisure Survey.

Many researchers in the field of recreation and tourism feel there is a shortage on specific data on outdoor recreation and recreation and tourism in green areas, nature and forests. Many public services (on national, regional and local level) and other parties ask for this information, but the major national surveys on recreation and holiday behaviour are not focused on this, but much broader. Also it is mainly usable for national analyses and less for regional analyses.

4 Recreation inventories now and in the past

4.1.1 Research and statistics on demand

4.1.1.1 National household surveys

The Netherlands don't collect data specifically on the recreational use of forests and nature on an overall national base, certainly not on a regular base. Data of recreational use of nature and forests can be pulled out of national monitoring of day-trip recreation and other household surveys.

The last substantial national survey on recreational needs and desires with regard to nature was carried out in 1999. In 1999 the Ministry of Agriculture, Nature conservation and Fishery (as it was called at that moment) commissioned an extensive project: 'Operation Treehouse – nature as living environment' (Operatie Boomhut). In this series of studies also a national quantitative survey was carried out about recreational needs with regard to green space and nature. Another part of the study created spatial pictures of this recreational needs for nature and combined needs with supply.

In the Netherlands national, quantitative standardised data on recreational behaviour are collected. We have three major surveys:

- Continuous Holiday Survey (CVO)
- Continuous Leisure Survey (CVTO)
- Continuous Day-trip Survey

The CVO, the survey on holiday behaviour, takes place since 1987 and is held every year. The CVO gives a broad and in-depth insight into the developments and trends in the holiday market. Number of holiday trips and daytrips within holiday are included, and also destination is a very important aspect. Destinations go into geographic holiday-regions and categories such as 'cities', 'beachside, seaside, dunes' and 'hills'. Nature is not a separate category, so one has to combine several categories. Unfortunately some of these categories also include 'non-natural' areas; respondents can tick several categories and also have to indicate the main environment type.

Visiting a nature reserve/area is one of the activity categories; walking/hiking, fishing, climbing mountains and canoeing are the other relevant categories; hence the categories may overlap.

The CVTO, a study on day-activities as off 1 hour, started in April 2004. The whole survey is based on the type of activity. For some of these recreational trips, the day-trip environment is recorded. Day-activities during holidays are excluded. The first outcomes have been presented in 2005. The survey will take place every year.

In 1990/'91, 1995/'96 and 2001/'02 we have had Day-trip surveys carried out by Statistics Netherlands (recreational activities of 2 hours and more). The base of this survey is recreational activities. For some of these recreational trips, the day-trip environment is recorded. It is expected that this quintannual survey will not be repeated in 2006/'07 because the last edition already suffered from financial problems (hence the one year delay of the 2001/'02 survey) and the newly launched CVTO-survey on day-activities. Unfortunately the old day-recreation survey and the new CVTO use different definitions and the results are not comparable. Research on the long-term development of day-trips in The Netherlands will only be possible before 2001/'02 (quintannual data) and from 2004 (annual data).

In addition to these national recreation and holiday surveys we also have:

- ✓ A national time budget survey (*TijdsBestedingsOnderderzoek TBO*);
- ✓ A Supplementary Facilities Survey (*Aanvullend Voorzieningen Onderzoek AVO*); and
- ✓ A Survey on mobility (*Onderzoek VerplaatsingsGedrag OVG*).

The TBO is a quintannual survey (1975, 1980, ..., 2000) looks into time allocated to activities such as work, personal care and leisure activities. The survey provides information on the time spend on outdoor recreation in relation to the total amount of leisure time and the time allocated to other activities. No information on locations or the environment is recorded. The AVO provides information on activities and the use of facilities, including leisure activities/facilities such as hiking, swimming and boating; again the location and environment are not recorded and the survey frequency is rather low. The annual OVG is the national survey on the Dutch people's (daily) mobility. Information is available on the time and distance travelled and the transportation mode for 'recreation/sports' and 'going for a ride/hiking'. The leisure environment is not recorded.

An important aspect of study in the Netherlands is preferences of recreationists. Which factors are the most valued by recreationists? Both Use Value as 'Experience' Values come up. Lots of insights are gained in the last decades. Especially valuation of hiking and cycling possibilities has been looked into. With insights in recreational preferences the suitability of supply can be valued. One aspect of the 'System for Monitoring Green Environment'(Monitoringsysteem Kwaliteit Groene Ruimte, MKGR) is recreational suitability. For the purpose of this MKGR Researchers used a standardised questionnaire for recreational values (SPEL). The method provides overall national pictures.

Some national studies looked into reasons for not-visiting forest and nature areas, 'latent demands' and so on. They show that personal restrictions, such as lack of energy and bad physical state, are important reasons for non-participation. On base of possible restrictions researchers segmented recreationists in categories.

4.1.1.2 On- site Visitor studies

Area-specific monitoring of individual forests or other nature areas with regard to recreational use and preferences are collected in the Netherlands, but not for every area and not on a regular and standardised base. It is not clear which proportion of the nature areas are monitored. This is partly due to the large number of owners and managers

Only the National Forest Service aims to monitor all of its areas once every 10 years. (Almost) none of other organisations/private owners systematically monitor recreational use. In the mid 1990s Natuurmonumenten, one of the other large Dutch nature conservation organizations, has developed a method for monitoring the recreational use of its areas (both quantitative and qualitative approaches). Unfortunately, due to financial reasons, only three areas have been surveyed since.

Some of the larger organizations sometimes monitor recreational use, especially when specific questions arise. The dune-water companies, which own many hectares of dune areas, have conducted several surveys in the past. Some also automatically count cars, bicycles and so on entering the area. Also for National Parks (many times the National Forest Service and/or Natuurmonumenten play a part in this areas) and real Recreation Areas visitor studies are important. Some studies of Recreation Area managers question not only visitors but local inhabitants too.

Many of the smaller owners don't carry out visitor- studies. Of course money is one of the reasons, but also not for every owner of organizations recreation is an important aspect in site management.

The State Forest Service only monitors the quality of the areas for recreational use (as experienced by the visitors) and not the number of visitors and visitor flows. This also holds for most other owners. Research of visitor numbers and flows many times is considered too expensive.

4.1.2 Research and statistics on supply

4.1.2.1 Land-use and forest statistics

The main national information source on the supply of outdoor recreational opportunities is the land use database maintained by Statistics Netherlands (CBS). The latest version is of 2000. Over thirty types of land use are distinguished. There are nine main categories, most of them with several subcategories. The most relevant subcategories are: forests, dry natural areas, wet natural areas, parks. Other relevant categories may be: water with a recreational function (swimming, surfing, marinas, but not boating), allotment gardens. The database is rather detailed (low minimum surfaces per category) and spatially quite accurate (scale 1:10 000). A drawback is that the land use areas do not coincide with management units. This means that the information that is available from other sources (e.g. National Forest Service), on the way the area is managed, can not easily be combined with the land use data. Nevertheless it is an important database, since it covers all forests and nature areas within the Netherlands, regardless of who owns or manages the area.

In the past Forest Statistics were collected on a regular base. The last Forest Statistics database dated was the Fourth Forest Statistics. There are also statistics for timber harvest (HOSP). Interest in forest data remained, because forests are an important part of Dutch nature, but there was need for extension and revision of the Forest Statistics. In 2000 Monitoring Functionality Forests (Meetnet FunctieVervulling Bos, MFV-Bos) started. MFV-bos more than 20 indicators are moni-

tored. This list contains indicators for the functions of forests that are considered very important in forest policy: Timber production, recreation, nature, environment and landscape. Timber production and nature get the most attention. For environment there is also a specific monitoring system. Indicators for recreation are: accessibility, attainability, noise and rubbish. Of course, for recreation value also aspects of nature, timber and landscape are important.

4.1.2.2 Recreational Accessibility/opening survey

In the mid 1990s, the Ministry of Agriculture, Nature and Food Quality and the Grontmij first analysed the opening of forests and nature areas in the Netherlands. In 2003/2004 the Stichting Recreatie repeated this study for the areas of the four largest owners and maintainers of forests and nature areas (the National Forest Service, two private nature conservation foundations, namely Natuurmonumenten and the federation of Provincial Landscape conservation foundations, and the Ministry of Defence). In 2004/2005 the opening of the remaining forests and nature areas in the Netherlands were re-assessed. Because there are many owners collecting data is much more difficult and time-consuming. Therefore the 2004/2005 study centered on forest and nature areas around the Dutch Big30 cities (10 km). Response rate was 29%.

4.1.2.3 Other data

Data about recreational supply (outdoor recreation and others) are very fragmented and many times incomplete. Of course various organizations have data about some kind of facilities, especially what they themselves offer. The GIS 'BORIS' of the Ministry of Agriculture, Nature and Food Quality, maintained by Stichting Recreatie, is one of the databases where spatial data about recreation supply on a national level is collected. Examples of data collected in BORIS are holiday accommodations, golf fields and Long Distance Cycling Routes. There are no structural surveys or databases about recreational facilities in forest and nature areas.

5 Summary of methods

5.1.1 Household surveys

As we have seen in 3.2 there are some important household surveys on recreation and holiday behaviour. The Continuous Holiday Survey (CVO) is carried out each year. NB. In contrast to many other countries, the CVO/Dutch definition of a 'holiday' excluded business-related trips. Approximately 7,000 respondents representative of the Dutch population answer questions on their holidays during the previous three months four times per year. Respondents are selected from the CAPI@HOME database (comprising 70,000 people) and co-operate via their own PCs. The surveys take place in January, April, July and October. The combination of a large random sample and four surveys per year yields highly accurate results. An additional advantage is that developments in the market can be followed closely. As the information in the system goes back as far as 1987, analyses spanning a large number of years are possible. Relevant developments and trends in the holiday market become clear. Basic reports on short (1-3 nights) and long (4+ nights) holidays are published annually and several other reports based on the CVO survey are also available. In addition, <http://statline.cbs.nl/> and a commercial 'marketing tracker' allows one to execute fairly simple analysis and the CVO data sets are available for participants for more detailed analysis.

The basic reports include the following information:

Holiday characteristics	Profile characteristics
Departure date	Age
Return date	Social class
Country of destination (for holidays abroad)	Education
City/province (for domestic holidays)	Gender
Repeat visits	Family composition
Means of transport	Province of residence
Organisation of transport	Income
Accommodation	
Organisation of accommodation	Ownership durable recreational goods
Travel organisation/tour operator	
Transport and accommodation booked with the same organisation	Media behaviour
Time between booking and departure	- radio stations listened to
Reasons last-minute bookings	- newspapers read
Winter sports (including activities)	- magazines read
Number of people travelling	- radio and television magazines read
Cost of holiday (prepaid)	
Total cost holiday	
Activities undertaken	
Type of holiday	
Way in which information was obtained	
Appreciation holiday	

The research offers participants extensive possibilities to add their own questions on, for instance, familiarity with their name, image, positioning and client satisfaction.

Since 1990, Statistics Netherlands (CBS) has conducted 3 surveys on recreational activities of 2 hours or more (excluding an overnight stay). These so called Day-Trip Surveys (Dutch: Dagrecreatie Onderzoek) are conducted every five years, during a 1-year period (1990/'01, 1995/'96 and 2001/'02). In order to reduce the task load, day-trips are recorded for a 2-week period per respondent only. The activities of respondents from large households are recorded for 4-weeks to obtain a sample that is representative of the Dutch population. Some 12,000 respondents representative of the Dutch population recorded their day trip behaviour (9,000 have had day trips during their two weeks recording time).

Data are recorded both on the respondent and on the day-trip level. The main day-trip categories include:

- sunbathing, swimming, picnic, and day-camping;
- sports and active recreation (including cycling, hiking etc.);
- attending and accompanying the sports
- going for a ride;
- attending attractions (including gardens);
- (fun-) shopping;
- going out; and
- remaining activities (including nature-oriented activities)

For some of these trips, the day-trip environment is recorded.

The results of the three consecutive were published in three reports. In addition, <http://statline.cbs.nl/> allows one to execute fairly simple analysis on (part of) the 1995/'96 and 2001/'01 data. The entire 1995/'96 and 2001/'01 data sets are available from the Wetenschappelijk Statistisch Agentschap. The continuation of the quintannual Day-Trip Survey is uncertain due to economy measures.

The ContinuousLeisureSurvey (CVTO) started in 2004 and will be conducted every year. The CVTO is using a weekly sample of approximately 350 respondents (representative of the Dutch population). Respondents are selected from the CAPI@HOME database (comprising 70,000 people) and co-operate via their own PCs. The survey is based on the type of activity. Activities as from 1 hour are recorded. Day-activities during holidays are excluded. For several activities, the environment is recorded including categories such as 'seaside', 'countryside', 'forests', 'city centre' and 'park in the city'. Other data are duration of stay, distance or time travelled to destination, mode of transport and basis 'profile' information. The CVTO pays special attention to recording activities of the approximately 1.5 million non-western immigrants.

5.1.2 Supply

The Monitoring Functionality Forests (MFV-Bos) is a field study research. It contains 3622 sample locations in all Dutch forests. In 4 years time these locations are monitored; each year 25% of the locations. 17 terrain conditions and tree characteristics are measured.

The 2003/2004 study of Stichting Recreatie on accessibility of forests and nature only consider areas of at least 5 ha and classify each area according to the following categories:

- fully open: fully open to the public during at least 358 days a year;
- paths only: open on roads and pathways only;
- limited access: administration ticket and/or membership are compulsory;
- temporarily open: open during certain periods of the year; access prohibited during, for instance, the hatch/incubation season;
- highly apt for visual experiences (Dutch: 'beleefbaar'): access is prohibited, but measures have been taken for the area to be enjoyed from a distance (e.g. from a road, by means of excursions, observation huts); this category was added in the 2003/2004 study
- cutoff/closed: at best the area can be viewed for a distance (e.g. a road).

The 2003/2004 study asked the four largest owners and maintainers of forests and nature areas to re-assess the 1995 data and to add newly obtained areas. In addition, 16 areas were visited and assessed independently to check the data. (Almost) every area of the organizations was included in the research.

The 2004/2005 study centred on forest and nature areas around the Dutch Big30 cities. 2600 questionnaires were send to (smaller) owners of forest and nature areas: municipalities, private owners and organization (response rate 29%). Areas are open (fully open or opened on roads) or closed. An overall national picture was given on base of subsidy requests for nature conservation. The questionnaire collected data with less detail and distinction than the 'large owner' survey. The complexity would be too high for many to make participation attractive, also the subsidy programme don't know the complex distinctions in this way. Compared to the other

survey qualitative aspects are taken into account: for example questions about reasons for opening or not opening their property.

5.1.3 Analyses with help of models and GIS

AVANAR is a spatial model for calculating demand and supply ratios for recreational activities and is the Dutch acronym for the Coordination of the Demand for and Supply of Nature As Recreational Space. It is a normative model that indicates where shortages of recreational opportunities for the local population exist, how large these shortages are, and how much land of a certain type is needed to eliminate these shortages. AVANAR may also be used to simulate the contribution of new green areas in reducing present shortages. The model is normative because it requires input on the maximum recreational intensity that is considered reasonable per type of land use, the distances within which enough capacity should be available for the local population, and on how many days per year the demand is allowed to exceed the local supply. The model generates output at the level of residential neighborhoods and does so per recreational activity. Thus far AVANAR has been implemented for walking and cycling, the two most common activities within the Netherlands. Besides the normative input the model makes use of national figures on demand and national databases on land use and local populations. Consequently it can, and has been, applied nation-wide (by commission of the Netherlands Environmental Assessment Office), as well as regionally (city of Amsterdam, provinces Noord-Holland and Zuid-Holland).

The FORVISITS-model is modelling visitor flows at a regional level. It aims to predict the (actual) number of visits to forests and nature areas within the Netherlands. It does so based on nationally available data on destinations for such visits (size and recreational quality), origins (local population: size and composition; holiday resorts: capacity and occupation rate) and the Dutch road network. The model is still under development, presently by commission of the Netherlands Environmental Assessment Agency. Due to the requested national applicability, the model is relatively simple and coarse. It distributes the estimated number of visits originating from residential areas and holiday resorts over the destinations that are available within the local choice set. The function, by which it does so, is based on the size of the different destinations, their recreational quality, and their distances to the residential area. Up till now only car-borne visits by local residents have been modelled. Based on the outcomes of a first national application, it was decided to increase the action radius used to define the local choice set from 15 to 25 km, and to differentiate between autochthonous and allochthonous residents. Furthermore the next version will also include visits made by tourists during overnight stays. FORVISITS generates the density of annual visits per hectare as main outcome. It differs from the aforementioned AVANAR-model in that it is not normative in nature, but tries to describe the actual situation. Moreover, it generates outcomes for forests and nature areas as destinations, rather than for residential areas as origins with certain demands. Combination of FORVISITS and another model, LARCH (Landscape Analysis and Rules for Configuration of Habitat), create possibilities for studying effects of visitors in nature areas on for example populations of breeding birds.

The model MASOOR (Multi Agent Simulation of Outdoor Recreation) simulates the (intensity of) movements of recreationists in certain areas. It tries to gain insight in spatial behaviour of people. Input are infrastructure and facilities in an area and characteristics and behaviour of visitors and visitor cq activity groups. In the model agents (for example a hiker) make decisions on planning and navigation. With this model different scenarios can be studied, for example with different kinds of path density. A recent Dutch study looked into the effects of increasing accessibility of agricultural areas on recreational use of nearby nature areas.

One aspect of the ‘System for Monitoring Green Environment’ (Monitoringsysteem Kwaliteit Groene Ruimte, MKGR) is recreational suitability. This contains two components: the suitability for hiking and the suitability for cycling. Some aspects are essential for this suitability. These are: land-use, distance to homes, accessibility, paths for hiking/cycling, quietness/noisyness, relief in banks/shores. These can be divided in different classes. Recreationists can tell what they value most and in which amount. Also the aspects are weighed in relation to each other. The results are set off against land-use data, sound level data and other relevant data.

In BelevingsGIS researchers try to deduce landscape characteristics – those characteristics from which earlier surveys show their influence on landscape experiences and valuation – from digital databases, to translate these into maps that show values per characteristic (indicator) and combined ‘landscape experience maps’. Validation of these maps took place on the basis of the earlier mentioned MKGR and a photo-validation study. The BelevingsGIS is still under development. Being dependent of available national digital data bring along restrictions.

5.1.4 On site visitor studies

The National Forest Service (Staatsbosbeheer) aims to monitor 10% of its areas annually. Hence all areas are monitored in approx. 10 years time. This system started in 1998; up to and including 2003 86 areas (approx. 75,000 ha out of the total 215,000 managed by the NFS; the NSF owns 240,000 ha) have been monitored by the regional branches. The number of visits is not monitored and the surveys mainly focus on visitor preferences and satisfaction (‘quality’).

Kinds of information that is included duration of stay, distance travelled to the destination, mode of transport to the destination, type of activities, use of facilities, valuation of recreational supply. Data about the people are not collected (personal factors, such as age, income). Mostly it is carried out with mailback questionnaires. The number of (mailback) questionnaires handed out in each of these surveys approximated 1000-2000. Response rates are fairly high.

Natuurmonumenten developed a method for monitoring the recreational use of its areas in the mid 1990s. This method includes both quantitative and qualitative approaches. Out of financial reasons the monitoring doesn’t take place anymore. Important questions were: Type of activities, preferences, duration of stay, distance travelled to the destination. The number of (mailback) questionnaires handed out in each of these surveys approximated 2000. The response rate was fairly high (80-85%). On site-studies of other organizations are very comparable with these studies mentioned.

6 Organizations

Both the CVO (holidays) and CVTO (day-activities) are commercial surveys conducted by a consortium of organisations. For ‘participants’ (= organisations that pay a certain sum of money annually for the use of these data) it is possible to add (temporary) questions on a subject of interest. This will cost extra money, but it does offer the opportunity to collect data within a fairly short period of time and using a well-organised panel. In addition, these special interest data are easily combined with the ‘normal’ data on holiday behaviour and socio-economics of the panel.

The CVO is a study by TNS NIPO, the Nederlands Research Instituut voor Recreatie en Toerisme BV (NRIT) and the Netherlands Board of Tourism and Conferences (NBTC). The ContinuousLeisureSurvey was set up by the same initiators as the ContinuousHolidaySurvey CVO.

APPENDIX 1. Publications of national importance

- CBS. 1992. Dagrecreatie 1990/'91 [*Day recreation 1990/'91*]. Voorburg/Heerlen: Statistics Netherlands.
- CBS. 1997. Dagrecreatie 1995/'96 [*Day recreation 1995/'96*]. Voorburg/Heerlen: Statistics Netherlands.
- Grontmij 1995. Bos en natuur; "open of gesloten?" [Forests and nature; "open or closed?"].
- Ministerie van LNV (1994 & 1995), Openstelling Natuurgebieden Nader Bekeken [Opening of nature areas examined more closely]. Den Haag: Ministry of Agriculture, Nature and Food Quality.
- NRIT. 2004. Vakanties van Nederlanders 2003 [Holidays by the Dutch]. Breda: Nederlands Research Instituut voor Recreatie en Toerisme BV.
- NRIT. 2004. Trendrapport toerisme, recreatie en vrije tijd 2003/2004 [*Trend report on tourism, recreation and leisure 2003/2004*]. Breda: Nederlands Research Instituut voor Recreatie en Toerisme BV.
- NRIT. 2004. Dagrecreatie in Nederland 2002/2003 [*Day recreation in the Netherlands 2002/2003*]. Breda: Nederlands Research Instituut voor Recreatie en Toerisme BV
- Veer, M.M. 2004. Openstelling bos en natuur 2003. Toegankelijke, beleefbare en afgesloten natuur bij Staatsbosbeheer, Natuurmonumenten, Provinciale Landschappen en Defensie [*Opening of forests and nature areas 2003. Accessible, appreciable/perceptible and secluded/isolate/closed nature of the State Forest Service, Natuurmonumenten, Provincial Landscape conservation foundations and the Department of Defence*]. Den Haag: Stichting Recreatie, Kennis- en Innovatiecentrum in opdracht van de directie Platteland, ministerie van Landbouw, Natuur en Voedselkwaliteit.
- Vries, S. de & Goossen, C.M. 2002. Predicting transgressions of the social capacity of natural areas. In: Arnberger, A., Brandenburg, C. & Muhar, A. (eds.) Proceedings of the Conference on the Monitoring and Management of Visitor Flows in Recreational and Protected Areas. Vienna, January 30 – February 2, 2002
- Vries, S. de, Jellema, A. & Goossen, M. 2004. FORVISITS: modelling visitor flows at a regional level. In: Sievänen, T. et al. (Eds.) Policies, Methods and Tools for Visitor Management. Proceedings of the Second International Conference on Monitoring and Management of Visitor Flows in Recreational and Protected Areas, June 16-20, 2004, Rovaniemi, Finland. Working Papers of the Finnish Forest Research Institute. Pp 77-83.

Norway

COST E33 WG2 Country Report

Recreation and nature tourism demand, supply and actual usage

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1 Population

Norway has a population on 4,7 million (2007). Norway is an urbanized society with 77.6% living in densely populated areas and just 22.4% living in the scattered populated rural areas. 45% of the population live in cities with more than 20,000 inhabitants. (Source: Statistics Norway – <http://www.ssb.no/>)

2 Land use

If we look at land use, built up (urban) areas cover less than 1%. Agricultural land is around 3%. The rest is mostly nature or semi-nature. 45% of the land cover is “*encroachment free areas*”, at least 1 km from modern technical encroachments. 11.7% is wilderness , at least 5 km from modern technical encroachment (Skjeggedal et al. 2005.)

3 Forests

The country area is about 323,802 km². Forests (11 million ha) makes up 36% of the land cover, but the majority of people live in the forested lowland. A large portion (North Norway and higher altitudes) of the forest is sub-alpine mountain forest dominated by birch (North boreal zone). Only 23% of the country is “productive forest”, being suited for timber production. Most forested areas are in Eastern Norway and Trøndelag. Different areas of the country also have different types of forest. Eastern Norway is dominated by spruce and pine. Coastal moors on the west coast and arctic landscapes in the north. Forest varies from broadleaf oak forest on the south coast through boreal spruce and pine forest to sub-alpine birch forest in the north. **Ownership of forests based on information from the 1995-1999 National Inventory of Woodland and Trees** is following: Private 74%; Public 12%; Community 6%; other 8%

4 Recreation participation

In Norway outdoor recreation or “friluftsliv” as is the Norwegian label, has a high value closely related to the national identity. “Friluftsliv” has a strong normative meaning; as something you should do. Participation rate in outdoor recreation among Norwegian population is 95%. Participation is measured as at least one trip in the last year.

There are no national surveys focusing specifically on forest recreation. The population survey of living conditions include measurement of some recreation activities that can to be related specifically to forest. Hiking in general has a participation rate of 82%, but hiking particularly in forest is 76%. The number of occasions in a year per person is 96 in total, and 49 for hiking in general of which 44 in forest (113 million occasions in total) (Vaage 2004).

Even if national surveys do not specifically focus on forests, forests are important as recreational environment. Estimates indicate that urban forest alone have around 100 million visits each year, or more than half the total number of forest visits in a year (Gundersen 2004). Forest recreation, especially urban forests, in Norway is mostly related to everyday recreation. Recreation in the mountains of coastal areas have higher social status, but mountain visits often are in the border zone between forest and mountain actually placing high recreational status on the sub-alpine forest.

5 Recreational conflicts

If we look at management conflicts, the strongest conflict regarding forest recreation probably is between recreation and timber production. There may be smaller conflicts between different user groups as mountain bikers and hikers. Such conflicts vary with place and season. Crowding is seldom a problem if we go outside the most important entrance points to nearby urban forests

6 Friluftsliv (Outdoor recreation) culture

As mentioned earlier, outdoor recreation, or more correctly using the Norwegian concept “friluftsliv”, has a strong cultural position. Traditional it has been seen as the simple life in nature, or ‘friluftsliv’ including harvesting, walking, skiing, riding, rowing etc. An important institutional is the ‘allemannsret’ – the “every man’s right”, meaning free access for anyone on all uncultivated land. Looking into the management this probably gives specific perceptions on user rights. Norwegian probably perceives themselves more like users than visitors, because it’s in our right to be there. The forest is “our” forest, not some place we visit. Traditionally there has been low impact facilitation, except for a path/road, and some primitive cabins or mountain farms.

7 Recreational surveys

There have been 13 national surveys on outdoor recreation in Norway since 1970 (Odden in prep). Those surveys to a large extent are activity oriented, and do not specifically focus on the forest. They give information regarding type of activity, rate of activity, the social setting of the activity and in some surveys motivation for activity. The type of environment as forest or other environments can only be separated through the activity list as “hiking –” or “skiing in” forest.

Those first studies documented the importance of outdoor recreation for Norwegians, and through this showed that outdoor recreation is a very important leisure activity that has to be taken serious in planning and nature management. The importance of outdoor recreation in Norway based on the national surveys can be somewhat modified in light of the often uncritical use of the frequency of trips. For example, the statement that 97% of the Norwegian population is practicing outdoor recreation used as argument, but in fact you should have done it minimum one time in the last year to be in this group. Jensen (2003) is, among others, focused on the 'over-representation factor' in such surveys, because outdoor recreation is something 'you should' have done in the western culture. The results from the surveys are used in several reports (Faye & Herigstad 1984, Dølvik et al. 1987, Teigland 1989, Vaagbø 1992, Kaltenborn 1993, Aasetre et al. 1994, Vaage 2002).

A lot of local studies have also been conducted, but those lack standardisation and coordination. Also on the supply side there is less coordinated information, but statistics in Norway (SSB) gather some information from queries to the municipalities, for instance on trails.

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Slovak Republic

COST E33 WG2 Country Report

Recreation and nature tourism demand, supply and actual usage

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1 Introduction

1.1 General description

In Slovakia, following 1989, tourism proved to be an important sector of the economy as its dynamic development – inter alia – led to the movement of a considerable part of workforce from the primary and secondary sectors to the tertiary sector. Furthermore, this helped to address unemployment and the trade balance deficit, made an increased contribution to gross domestic product and triggered investment activities in the wider national economy.

The priorities of the Tourism Section of the Slovak Ministry of Economy include specification, development and implementation of the measures contained in the National Tourism Development Programme (NTDP), originally adopted by the Government SR in early 2001.

The following tasks have been identified for future development:

- Provide for institutional coverage of tourism moving along two lines: state and business.
- Establish a legislative framework for the operation of tourism and its place in the Slovak economy.
- Intensify co-ordination operations and regional co-operation in tourism.
- Introduce quality systems in basic and additional services.
- Train human resources – educate and train tourism specialists.
- Focus attention on the field of gastronomy.
- Change the approach toward state promotion of Slovakia.
- Pay more attention to research and analysis of the development of tourism.
- Put greater stress on activating international co-operation.
- Devote ourselves to the development of new and unconventional forms of tourism.
- Develop a tourist information system.

Priorities include the establishment of the **National Office for Tourism** as a central state administration body. The Section further introduces prerequisites for business, consumer protection and financial support of enterprise, an area which also benefits from the implementation of the **Development Programme of Support to Tourism in SR**.

Following a **legislative standard aiming at consumer protection in tourism, which came into effect on 1 October 2001**, we have been finalising another highly important standard – **the act on tourism associations and the financial coverage of their operation**. It will be necessary to evaluate the potential there and determine the regional development trends. These tasks will be specified in the **Tourism Turning Regional** document.

As previous travelling trends have been replaced by requirements to experience unusual things and health-related excursions, the **state promotion of tourism** must focus more on such activities.

1.2 National Tourism Development Programme in Slovakia

The influence of tourism is relevant for employment, particularly in mountainous regions with underdeveloped industry and unsuitable conditions for intensive agricultural production. Often, it is the only suitable method for development and for prevention of population migration from these places to the cities.

National tourism provides an integral part of population consumption, regeneration and health care. Tourism contributes positively to common culture, experience exchange, social contacts, living standards and helps to define an image for the nation. From the economic point of view, tourism is not a resource demanding sector of industry in Slovakia.

Some tourism efforts have been directed into protected natural areas, however its impact on them is **lower than its impacts on other industry sectors**. Tourism places strong demands on both ecologically non-violated environments and on original country values – be they natural or anthropogenic.

1.3 Goals of Tourism Development – the main forms of tourism

The variety of types of tourism in each region is dependent upon the landscape and on long-term demand. The main forms are:

Summer mountain recreation – mountain tourism and other activities.

Winter mountain sports – based on skiing and other entertaining and relaxation activities.

City and cultural tourism – history and culture oriented forms of tourism together with congress tourism. This will be important in the future because of closeness and market mentality of our country.

Bath and wellness tourism – is preserved in this classical healing form and it is also developing new forms such as relaxation, fitness, health prevention, beautifying and conditioning. These forms of tourism are growing across the globe.

Rural tourism – is important for regions and localities.

Supplementary forms of tourism are **aqua tourism, hobby tourism, cycle tourism**, or other alternative forms of tourism like **sport tourism, shopping tourism** or **hunting tourism**.

These main and alternative forms of tourism were acknowledged by independent foreign experts, but mainly confirmed by praxis in Slovakia. Their relative importance is based on their respective contributions to the economic value of our overall tourism industry.

1.4 Forests in Slovakia

The total forest cover of Slovakia is 40.8% of its territory. There are 13% of private forest, 44% is community owned forest and 43% is public/state owned forests. About 66.8% are production forests and 16.6% are protection forests with special regulations due to their ecological sensitivity; 16.6% of Slovakia is forest with a special function (for example, park forests, spa forests, research forest, forest for hunting). The amount of forest area per person has been reducing since 1950 (from 0.5 ha/inhabitant to 0.38 ha/inhabitant). Also the ownership of the forest has changed since 1920. Between 1950-1990 the majority of the forests (60%-90%) were state forests, however, since 2000, state forests have accounted for around 40%. Generally, access to the forest is permitted, however there are (will be) some restrictions, which regulate the human activities in forests. In protected areas and national parks the access is regulated. Forest parks as suburban recreation spaces represent 33,000 ha in 60 towns across Slovakia.

2 Recreation inventories in the past

2.1 Demand

In Slovakia, 70% of inhabitants over 18 years of age participate in tourism every year. It is estimated that 9.5 tourism journeys were made per inhabitant in 1998 (a 28.5% decrease in comparison with the previous year). The most common forms of tourism were mountain tourism (38.1%), visits to the water basins (27.7%), visiting friends and relatives (13.0%), spa treatments (9.4%) and staying in the rural countryside (5.6%).

According to the Statistical office of Slovakia 45% of the Slovak population had a long term holiday abroad or in Slovakia during the summer of 2003 (1.5% less than in 2002).

The main reasons given for not undertaking long term holidays were:

- financial 45.8%
- health 15.0%
- employment 8.5%
- family 8.2%
- have a holiday once every few years 5.4%
- 10.0% of people do not go for holiday.

Some groups of the Slovak population regard holidays as a luxury item and this may have contributed to a stagnation of national tourism. In some European countries (France, Poland, Switzerland, Hungary) the development of national tourism is supported by „travel cheques“. We are not currently able to consider this kind of support for national tourism. The supply of Slovak country for

active foreign tourism business is very similar to surrounding countries. For decisions regarding tourism supply, it is important to know the demands of the potential visitor groups.

The demands of visitors coming to Slovakia are orientated towards recreational stays in the mountains (29%), winter sports (22%, in winter season alone 47%), visits to family or friends (11%) and stays near the water (11%). These four preferences of foreign visitors make up 72% of the whole demand; sightseeing tours and stays in spas follow and all other types of tourism each make up under 5% of the overall demand (the smallest concern of visitors was regarding shopping tourism).

2.2 Foreign visitors interest in recreational activities in Slovakia

2.2.1 *The interests of foreign visitors according to originating country (2003):*

- Czechs recreational activities involved stays in the mountains (25%), winter sports and recreational stays near the water (both 16%), visit to family/friends (15%) and shopping tourism (8%); other types of tourism contributed less than 6%.
- The Polish people favour mountain recreational stays (more than ¼ of them) and winter sports (24%). Overall these two types of tourism accounted for 49% of preferences. A much lower proportion were interested in recreational stays near the water and the shopping tourism.
- The Austrians are interested in visiting family and friends, town cultural-historical tours (14%) and mountain stays and winter sports (12%).
- The interests of Hungarian people were divided into more forms of visits. The most common activities were shopping tourism, winter sports, mountain recreational stays, town cultural-historical tours and stays with friends or family. A lower proportion were interested in spa stays.
- The Ukrainian people (a small proportion of tourists to Slovakia) indicated interest in visiting family or friends and shopping tourism.
- The German visitors signify interest in winter sports, mountain stays, transit tours, town cultural-historical tours, and stays near the water and in spas.

Data analysis was performed to investigate the interests of foreign visitors across the year, regionally and between different types of tourism. This information is useful for businesses and enterprises involved in creating attractions to meet the tourist demand. The information has also helped direct the marketing efforts of the Slovak Tourism Agency. The biggest pressure on recreational activities has been seen in the forests and other recreation areas, which are in the contact zones between the cities and their surroundings. There are 6,471,000 ha of recreation areas in Slovakia and 68% from them are forests.

Studies have been undertaken, which indicate that the inhabitants of cities which are situated within an agricultural region are interested in forest recreation, however, the inhabitants of cities surrounded by the forest show lower preferences for such activities. As may be expected, more interest in recreation is seen in the summer, than in autumn, spring and winter. Groups of visitors to forests comprise families (45%), couples (23%), individuals (19%), groups (11%) and others (2%). 55% of respondents visit just one forest and 45% visit many forests.

Table 1. Interests of foreign visitors in individual types of tourism in Slovakia:

(informations from 2003 in % - zdroj: Department of Tourism)

Concern about (in %)	winter	summer	autumn	year 2003 (average)
mountain recreational stay	15.1	23.4	20.6	20.2
winter sports	26.5	13.3	16.9	17.8
visit of family or friends	11.3	8.6	12.7	11.4
Recreational stay near the water	8.9	18.2	8.5	11.2
shopping tourism	9.1	7.0	10.3	9.2
Transit	6.9	6.1	7.2	6.9
town cultural-historical tours and stays	7.0	7.1	6.3	6.6
tours (recognition the nature, culture and history)	4.5	5.1	5.7	5.4
stay in spa	4.1	4.7	4.2	4.2
rural tourism	2.3	2.6	4.0	3.3
no consideration about stay in Slovakia	4.3	3.9	3.6	3.8
Total	100.0	100.0	100.0	100.0

Table 2. Purpose of vacation among Slovakian population in 1994-2000 in percent (%).

Purpose	1994	1995	1996	1997	1998	1999	2000
Mountain holiday	37.3	37.8	31.6	33.0	38.1	31.6	35.7
Staying near the water	28.5	31.0	21.6	22.3	27.7	23.2	18.4
Curative staying	6.0	7.8	10.0	10.2	9.4	14.4	16.5
Visit of family and friends	13.5	10.7	12.3	16.1	13.0	12.5	15.8
Staying on country	3.5	5.0	12.3	8.6	5.6	6.7	4.9
Combinet	4.2	3.8	4.6	4.8	2.6	4.4	4.0
Sightseeing tours	1.2	1.0	0.9	0.8	1.0	1.1	1.7
City's tourism	2.7	2.3	1.9	3.0	1.8	3.2	1.5
Other	3.0	0.6	4.8	1.3	0.8	2.9	1.7

2.3 Supply

2.3.1 General

The potential for many forms of tourism is quite high in Slovakia. According to “Regionalism of Slovak tourism” the northern parts are suitable for hiking and winter tourism; and southern parts provide opportunities for water and thermal recreation. Furthermore, there are many cultural, historical and naturally rich sites. Accommodation, boarding facilities and other supplementary tourism services are increasing.

Slovakia has some advantages over surrounding states:

- large variety of geomorphological and natural environments
- high amount of land covered with forest
- rich in mineral and thermal water sources
- folk architecture in good preservation
- easy access to centres of tourism

There are some preconditions, which need to be supported, developed and improved:

- urban and cultural tourism
- spa and health tourism
- winter tourism
- summer tourism and water tourism
- rural tourism/agrotourism

The new worldwide trend for “fitness-wellness tourism” provides both a challenge and an opportunity to provide new types of tourism for clients of all ages. Spa centres need to be a little modernised and should be advertised in foreign countries. There are 21 spa centres offering curative treatments, 42 natural hot water spring centres for recreation which utilise 1,200 mineral water springs in Slovakia.

2.3.2 Winter tourism and winter mountain sports

Slovakia has good natural conditions for winter sports and winter tourism. Ski centres should guarantee good conditions for a long season. We should concentrate on clients from countries where the conditions for winter sports are not so good (Hungary, Poland, Czech republic, Russia, Ukraine, Croatia, Latvia, Lithuania, Estonia, Bulgaria and Romania).

The facilities for winter (skiing) recreation include: 240 winter centres with 33 funiculars and 979 ski towns with whole transport capacity 407,786 persons per hour.

2.3.3 Summer tourism and water recreation

There are also good climatic and geographical conditions for the development this kind of tourism in Slovakia. The interests of national and international clients are growing in thermal spa centres, aqua-parks, lakes, dams and rivers. Centres that are open throughout the year can help to better utilise the accommodation and provide more job security for employees in new professions.

2.4 Development of tourism and agrotourism

Development of tourism and agrotourism provides the opportunity to improve the potential contribution of the Slovak countryside (farmstead, folk architecture, agricultural work, harvest, fruits collection, folk customs accommodation). A large influence will be the spread of eco-tourism, based on the sustainable development of tourism across the EU. Cycling trails, camping sites, hunting grounds and thematic parks will be constructed. Hiking trails and cycle roads: 84 geomorphological units (for example, High Tatras) with a total length of hiking trails of 9,372.15 km; the density of hiking trails ranges from 0.01 up to 0.97 km/km². There are 6,000 km of biking roads (along the rivers, in mountain areas) in Slovakia.

3 Summary of used methods

3.1 Methods of demand detection

Research of recreation demand was completed in 1977, 1985 and 2003 based upon a sample of 50 families in two cities, one surrounded by agricultural land and the other surrounded by forest. The results of the questionnaires reflected the differences between landscapes and highlighted social differences between inhabitants. The interests of the foreign tourists were collected by the Slovak tourism institution.

3.2 Methods of supply detection

The supply of tourist recreation centres, buildings and facilities for tourism is monitored by the Slovak tourism institution and Slovak tourism agency.

4 Organizations of conducting OR maintaining of inventories

4.1 Institutions of Tourism Development and Organization

- Slovak Institute of Tourism, which is governed by the Ministry of Economy of Slovak republic (www.economy.gov.sk)
- Slovak Agency for Tourism (www.sacr.sk)
- Association for Rural Development (www.vydra.sk)
- Middle Europe Information Network of Local Development (www.celodin.sk)
- Slovak Association of Enterprisers in Agrotourism (www.agrotourism.sk)
- Slovak Agency of Environment (www.sazp.sk)
- Regional environmental center (www.rec.sk)
- Rural organization of community activities (www.voka.sk)

In the tourism business sector, competition exists between small and middle-sized firms. There are some occupational associations which represent the interests of small and middle-sized firms for self government and state government. They are: Slovak association of travel agencies – SACR, Association of Slovak hotels and restaurants – ZHR SR, Funiculars and ski tows - Association – LAVEX, Slovak association of rural tourism and agrotourism - SZVTA . These associations have their own databases, but often present only partial results.

4.2 Organization and coordination

Currently there is no effective organisation of the tourism structure in Slovakia. A specific ministry led department providing policy plans for national tourism and sufficient financial resources does not exist. Instead, policy is currently implemented directly by regional and local authorities and associations in an ad-hoc fashion.

The main organizations responsible for some of the policy decisions are as follows:

- Commission for tourism development at Committee for economy, privatisation and enterprise of the National parliament of the Slovak Republic (SR)
- Government of Slovak republic
- Ministry of economy SR – Section for enterprise and tourism
- Autonomy regions – offices for tourism
- Regional and local associations for tourism
- Towns and villages

The new tourism organisation structure should have overall responsibility for the state direction and management of tourism and its links to foreign agencies, the private sector, profession institutions, regional and local authorities and towns and villages.

In the future, any new central state institutions for tourism should have :

- A legislative background
- An application of state policy in tourism
- The financial resources necessary for tourism development.

The ideal solution for the future would be the establishment of a ministry for tourism development, and to define its structure and role between ministries, regional and local authorities. The interests of tourism must be accepted within other ministries such as forestry, agriculture, transport and communication, environment etc. This task may be fulfilled only in the framework of new legislative in tourism. In the first phase, particular acts should be approved which define the co-ordination role to be played by the new body.

We do not currently have a specific research institute aimed towards questions of tourism development . Furthermore, there is no organisation able to prepare objective tourism analysis for government and parliament, although some research is undertaken at universities and research institutions (e.g. forestry, landscape ecology, agriculture, landscape architecture, tourist economy and management).

According to our experiences, the placement of decision making powers and financial resources with regional authorities would be very effective.

4.3 Organization of rambling in Slovakia

On the 10th of August 2003 it was exactly 130 years since the foundation of the first rambling (or hiking) organisation on the territory of that is today Slovakia. It was founded in Starý Smokovec in 1873. In 1990 – tourists restored their independent organisation and called in the Club of Slovak Tourists (CST or KST). It followed up on all the good experiences and tradition and enhanced co-operation with clubs in other countries and again took over the care for 26 tourist buildings. For the time being, the CST comprises 481 units with almost 30,000 members. Its activities are focused on the care of children and teenagers in over 200 youth rambling groups and care for the network of marked tourist routes. Annually, over 600 events are organised for the public, regularly publicised by the calendar of CST events and the CST web site www.kst.sk.

Caravanning and camping in Slovakia is organised under the auspice of the **National Auto-Moto Club SR (NAMK), camping and caravanning section (SCC) and the Slovak Camping and Caravanning Club (SCCC)**. They pay considerable attention to club activities, which comprise separate club events, national sporting and tourist sojourns (regional events) as well as top events – rallies with international participants. For the time being, Slovakia offers a whole series of options for family and team recreational stays focused on caravanning and camping. There are over 120 registered camping places available (for assistance, consult the map Autokempingy SR), numerous thermal pools, water areas, isolated natural beauties accompanied by historical sites and folk peculiarities – interesting to see for any visitor.

In order to better use our camping places by nationals and foreign visitors, certain requirements need to be fulfilled. The existing operational camping places need to be tested and categorised by a technical board, to be clearly indicated by information signs with prices compliant with the statutes of international organisations F.I.C.C. and A.I.T. F.I.C.C. (Fédération Internationale de Camping et de Caravanning) A.I.T. (Alliance Internationale de Tourisme).

5 Conclusion

5.1 Forms of support for the Project of Tourism Development

The current Slovak Government (SG) declared support to tourism to be one of its priorities in its manifesto.

The document further reads that the SG would focus its activities on shaping tourism as a sector capable of creating new jobs and foreign currency incomes.

The Project of Tourism Development was adopted with monies totalling SKK 263,7 mn for the year 2002.

The Project consist of the following programmes:

1. Programme of Tourism Development in SR with a budget SKK 161.9mn.
2. Programme of Tourism Development of winter resort Šarbov - a municipality in east SR - SKK 9mn.
3. Regionalisation of tourism - SKK 5mn.
4. Establishment of Foreign Representations of Slovak Agency for Tourism - SKK 6mn
5. Support to Regions in the Creation of Tourism Product - SKK 5mn
6. Organisation of the Day of the Slovak Republic in Prague - SKK 1mn
7. Grant Scheme - SKK45mn.
8. Tourism Information System - SKK 30.8mn.
9. Support to the Introduction and Improving Services by Tourist Information Offices in SR
10. Support to the Development of Spatial Orientation and Information in the Sector of Tourism in SR

Only one specialised *Programme for tourism supporting in Slovakia* (approved by Slovak guarantee and development bank) exists for supporting tourism infrastructure. There is a contribution programme aimed, until last year, to increase granted credit up to 70%, resp. 80% in absolute part, maximum 3mn SKK, resp. 4mn SKK. During 1991-1999 grants of almost 328 mn SKK were distributed as financial dotations. Contributions from this programme have supported 6100 hotel beds, 25 thousand chairs and tables and almost 4 thousand jobs. This project was very effective for tourism development. The realisation of this programme has been approved by government resolution SR no.706/2000 and has been designed to improve the quality of tourism infrastructure (hotels, sport areas etc.) and to stabilise s tourism services.

Other opprotunities for supporting tourism development are defined in the *Supporting interest programme* (aimed at small and medium type of enterprise generally, not only for tourism). This programme has been managed by the National agency for small and medium enterprising development via five commercial banks. For tourism purposes, in the second half of 1999, it provided grants to 9 projects amounting to 37 mn SKK. Since the programme began, 73 projects have been supported to the tune of almost 262 mn SKK.

To date, the *Supporting funds of the European union* have not had a great influence on tourism enterprises because Slovakia had not specifically defined tourism as a national priority. Some tourism development activities in specific regions of Slovakia have used foreign financial resources (from Germany, France, Great Britain) e.g. High Tatras, foundation of Tourism Agency, Gothic road on eastern Slovakia, Žiar upon Hron, Rožňava, Vyšná Boca – Čertovica). However, due to a lack of financial resource, many tourism development activities were inhibited or are in stagnation.

5.2 Goals in research and practice

- Inventory of new built recreation objects and centres (golf, play grounds, bike tracks, hiking trails and aqua-centres).
- Research on new negative phenomena in the landscape from recreation activities as our biotic diversity changes, occurrence of invasive plants in protected areas, soil and water degradation.
- Increased budget for research and publications.
- Better co-operation between researchers and recreation property owners.
- Increased promotion of tourism.
- Better infrastructure and services for recreation tourists.

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Switzerland

COST E33 WG2 Country Report

Forest recreation and nature tourism demand, supply & actual usage

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1 Introduction

1.1 Free access, forest visits and outdoor activities

The Swiss report will specially treat forest recreation demand, supply and actual usage. Nature tourism is - until now - mainly of private economic concern and so it is difficult to get data. With the ongoing creation of regional parks there is a big change in the awareness about this topic and the gathering of information (mostly case studies). With the start of the new website www.natursportinfo.ch – which is a joint venture with the German office of nature protection – by 10th November 2005 the public administration now offers large public information about outdoor sports.

In Switzerland, anyone who wants to go to the forest can go whenever and wherever they like. This is because the forest is freely accessible for normal use, regardless of whether it is privately or publicly owned. The **right of free access** was laid down in 1907 in Article 699 of the Swiss Civil Code. This is not something that can be taken for granted. In France and Italy, for example, you are usually not allowed to enter private forests. In Switzerland, however, such restrictions are only permissible if they are in the interests of forest protection or some other public concern, e.g. in order to preserve biodiversity.

The Swiss make good use of their rights and go to the forest as often as they visit friends or acquaintances (Zimmermann et al., 2000; Müller, 2002). Those who have never set foot in a forest are a small minority. 96% of the population visit the forest in the summer (87% in the winter), 58% even going several times a week (38% in the winter). In the time between 1978 (Hertig, 1979) and 1998 the frequency of **forest visits** has almost not changed. It has stabilized at a relatively high level. The forest was, and still is, a popular place for recreation and leisure.

The Swiss surveys show that the recreational function of the forest is highly regarded. Only the forest's functions of producing enough oxygen and maintaining biodiversity are considered more

important. People mainly visit a forest to relax in an agreeable atmosphere and take a walk in the fresh air. The forest is also attractive as a place for **outdoor activities** and sports, with jogging, fitness trails and cycling as the most popular. People pursuing sports or just going for a walk all appreciate the forest's well-developed and maintained infrastructure. According to the last survey (Zimmermann et al., 2000), 73% of forest visitors are satisfied with the present provision of paths, benches and barbecue spots. 40% of the Swiss forest area is, in fact, no more than 30 meters away from a forest road or footpath and there are currently 600 square meters of well kept forest per capita in Switzerland (WSL/SAEFL, 1999). On average, most Swiss can reach the nearest forest within 20 minutes, and more than half of them walk there. Since 73% (BfS, 2005) of the Swiss population live in towns or cities, the forests closest to the towns are used most. This is the case for about 5% of the total forest area, but in the Central Plateau it is 8%. In comparison, 83% of the Swiss forests are never, or hardly ever, used for recreation.

For the first time figures are available for the **value of recreation** provided by all the forests in Switzerland and for the whole population. A study commissioned by the Federal Office for the Environment (FOEN) calculating the costs of traveling and staying arrived at a value of 1,778 francs per person and year. Multiplied by the number of adults over 18 years living in Switzerland the total recreational value of the forest amounts is between 3 and 8 thousand million EURO. This figure includes the costs for getting to the forest and returning (traveling costs) and the money equivalent of the time spent on the journey and the stay in the forest (OTT, 2005).

1.2 Strain on the forest

Although most visitors prefer the forests close to the towns, there is still a danger that even some more distant forests will be visited too frequently. The Swiss have an increasing amount of free time, which means that activities in the forest are not confined only to weekends. The latest sport trends, such as snowshoe walking or mountain biking, encourage this trend. In particular people on snowshoes can penetrate remote forest areas and may endanger wildlife. More and more people are also using the forest as a backdrop for modern recreational activities such as survival training, paint-ball games or techno-parties. If these events are large, permission from the canton is needed. For numerous other matters, such as mushroom collecting, or whether dogs must be on leads, legislation varies from canton to canton. Switzerland has all in all 26 cantons and 1,219,184 ha of forested area which makes 31% of the land-use. Forests in built-up areas are exposed to particularly high levels of stress – as can be seen in the “Allschwiler Forest” near Basel. The area is visited by more than a quarter of a million people every year, which has led to a 60% reduction in ground vegetation and 40% in plant diversity. Where only bare ground is left, there will be no ground-nesting birds or hares. The frequency of accidents with game animals in the Allschwiler Forest is much higher than average, due to the large volume of traffic, attacks by dogs and the enormous number of visitors in general. The damage done by these intensive recreational activities costs the forest owners between 90 and 3,000 EURO (120 and 4,000 Swiss francs) per year and hectare, since it is up to them to repair the paths, protect the forest and deal with any damage to young trees. The forest was, and still is, a popular place for recreation and leisure. Surveys show that the recreational function of the forest is highly regarded. Only the forest's functions of producing enough oxygen and maintaining biodiversity are considered more important.

1.3 The need for recreation inventories

Discussing the need for recreation inventories in Switzerland we have to distinguish three levels, (a) the national level with national inventories, (b) the regional level and/or the level of the can-

tons and (c) the local level with activities in the community. On the second and the third level the competences of the authorities concerning their planning activities differ from canton to canton.

Regarding the **national level** (a) we have to consider the actual adaption of the law of nature protection (NHG) which will give the basis for the creation of regional parks. Until now in Switzerland there exist only national parks. But now with the policy changed and there will be created in a first phase about 10 regional parks. In these parks the natural tourism is a major issue and wherever parks are being settled, the park organizations have to build up a monitoring system. Probably the responsibility to design and realize the monitoring will be at the regional level, but the state will probably give support and maybe instructions. Furthermore the topic is of interest for the national department of environment because many of the areas under protection are also areas which are of importance for recreation activities. For the monitoring of such areas with combined or even concurring goals there is an important need for information.

In partnership with actors from rural planning, interest groups of all different kinds of nature sports activities as well as from nature protection there had been created an internet-platform, where information and links concerning sports activities in nature are presented and discussed: www.natursportinfo.ch. This platform which started 11.11.2005 is country cooperation between Germany and Switzerland. Switzerland can use the structure which has been mostly developed by the Federal Nature Conservation Agency from Germany. There homepage is: www.natursport-info.de.

On the **regional and cantonal level** (b) the forest service is increasingly confronted with all kinds of demands; consequently there is a need of defining a policy and having data to analyze the situation. Examples are demands for creating rope parks, new activities like war games or more intense activities like mountain-biking across the forests (s. Keller and Bernasconi, 2005). The need for scientific based information is also proved in the regional forest planning (state of the art of regional forest planning: s. Horat und Bachmann, 2004).

On the **local level** (c) there is a need for information specially dealing with local landscape planning on the one hand, and for the planning of the forest enterprises as a basis for the multifunctional forest management or for the creation of new products or services. More and more forest enterprises - especially near urban areas - create new services and products in the field of recreation in the forest or they find partners of the local economy (sponsoring partnerships).

1.4 Science-based analysis of the need for recreation inventories.

An overview of the actual discussion of recreation activities in forests in Switzerland is given in the national sub-report of the national forest policy program (BUWAL, 2003). A nationwide survey of the public opinion about forests was conducted in 1999 (BUWAL, 2000). This report gives an important analysis of the average visits of the Swiss public and is thought to be established as a social monitoring. D. Reichert and Ch. Bättig have been evaluating the opinion pool from 1999. The result was that the Federal Office for the Environment FOEN should continue to make a social monitoring and to assure a controlling of the national forest policy based on the national forest program. There also exists the Swiss National Forest Inventory which after evaluation will give for the third inventory from 2004 to 2007 information about 4 recreational items. This information will be a survey between forest rangers.

2 Recreation inventories in the past

2.1 Inventories on the national level

Regarding the national level (a) we have to state, that actually there is no official recreation inventory installed. There are all sorts of inventories and monitoring surveys that can contribute to this issue and where you find interesting data, but whether there is an official – interdisciplinary - policy about outdoor recreation nor is the task defined and a responsible department named, nor is there a unique recreation inventory itself ongoing.

In the national inventory of Swiss forest (WSL, SAEFL, 1999) there is also information about the effect of forests for recreation mainly based on infrastructure and the results of regional planning. The inventory gives information about supply (modeling) and demand: which is new concerning activities and seasonality (see above).

Contributions to the **demand** can be found in all different fields, studies and statistics. Some of the most important are mentioned below:

- The first Swiss Survey on the social demands on the Swiss forests was conducted in 1999 (Zimmermann et al., 2000) and is thought to become a monitoring
- The Research Institute for Leisure and Tourism (FIF) did some surveys regarding behaviour and time management for leisure. As well together with the society for practical social research GfS the FIF makes an opinion pool on the behaviour of Swiss during leisure-time (indoor and outdoor) till 2000 every year and since then every two years. Next opinion pool will be made in September 2006. This opinion pool is part of UNIVOX.
- The Swiss Federal Statistical Office has in its yearly household-panel (www.swisspanel.ch) 3 questions regarding leisure activities (indoor and outdoor).

The Ministerial Conference on the Protection of Forests in Europe MCPFE is a high level political initiative that has developed as a dynamic process towards the protection and sustainable management of forests. This political commitment involves 44 European countries, European Community and cooperates with other countries, as well as international organizations that participate as observers. Every 3 to 4 years the countries have to **report on the quantitative indicators for Sustainable Forest Management**. The reference year for the 2007 report is 2005. There are 3 indicators that are of importance for “**forest recreation and nature tourism supply and actual usage**”:

- **MCPFE indicator 3.4:** Value of marketed services on forest and other wooded land (recreational services value, beside environmental, protective and other services value). E.g. forest cemeteries or forest rope parks
- **MCPFE indicator 6.10:** Area of forest and other wooded land where public has access for recreational purposes and indication of intensity of use: area with legal right of access, access available to the public for recreational purposes, area with recreation purpose as one main management goal
- **MCPFE indicator 6.11:** Number of sites within forest and other wooded land designated as having cultural or spiritual values: number of archaeological sites, designated natural monuments (Forested landscape, trees, other forest related), designated historical sites, other sites with recognized cultural & spiritual values.

An important information basis for the supply are the Swiss maps; there is a whole variety of maps from national level 1:1 million to 1:25'000, over to leisure maps as hiking, ski tour, cross country skiing, regional maps, cultural Heritage (objects and roads) maps etc. On the internet there will be installed soon a platform for tour planning.

There exist also national initiatives like “forests-protection-population” which offers 9 information trails all over Switzerland. But again there is no national or regional gathering or inventory of all these supplies.

2.2 Inventories on the regional and cantonal level

On the regional and cantonal level there are two important forest planning processes to be considered: on the one hand in most cantons there have been established **regional forest development plans** (s. BUWAL 1996 and Horat und Bachmann, 2004). In the regional forest planning process one have to consider the demands of the public, ponderate existing interests, analyze the forest functions and inform the public about the strategic goals (s. BUWAL 1996, Bernasconi, 2004, Keller und Bernasconi, 2005).

In these regional forest plans the forests with functions of high importance are outlined (so called “Object Sheets”) and defined. The importance of the recreational function varies very much from region to region. In urban areas up to one third of the forest can be considered as of high importance to the recreation function.

The term “forest function” is a mix of supply and demand optic. Often the method used to define these functions consists in accumulating both, supply and demand information. For the moment there does not exist a precise methodology for Switzerland how to define the forest recreation function till now. Therefore there is a broad variety of existing tools, models and methods used in this specific field of action.

On the other hand some of the cantonal forest departments have established so called forest guidelines or **cantonal management plans**. These documents are primarily an instrument for the upper management and they define the general strategy of the forest management for the future forest policy. These instruments are mainly qualitative without a precise definition of forest sites.

2.3 Inventories on the local level

On the local level there are many case studies and plans of forest enterprises. Important and new **case-studies** have been realized and published in Locarno (Nielsen, 1991), Zürich (Schelbert et al., 1988), Basel (Baur et al., 2003) and Bern (Bernasconi et al., 2005).

Most recent **forest management plans** of the communities and forest enterprises put more importance to non timber products and services. Therefore different aspects of recreation activities and descriptions of recreation forests are more and more integrated in the management plans. Until now there is an enormous variety of methods and ways of presentations of this “new” issue. There is no overall planning guideline which would define the procedure and the criteria to describe and to plan.

3 Summary of methods used

3.1 Demand

At the moment there is no regular monitoring on the national level - except the forest inventory which will for the first time in its third census give more detailed information about the actual demand. The survey data, sample sizes and response rates change and differ enormously according to the planning level and the research topic. For the moment it is not possible to give a consistent model of actual practice.

3.2 Supply

An important database for the recreation supply are different planning documents (e.g. regional forest plans) and general maps as well as special sport maps (e.g. hiking maps).

The GIS is used by planners of all different levels. One can get the data at different institutions. At the moment there is a Swiss wide project ongoing to coordinate the data use and storage.

On the official website www.natursportinfo.ch it is planned to give information about the reserves and other geo-referenced information.

4 Organizations of conducting/maintaining of inventories and databases and State of policy of inventories

On the national level the management of the data is spread over different departments. Important institutions are the department for statistics, the department for environment and the research institute in Birmensdorf.

On the regional and cantonal level the databases are often maintained at the headquarter of the forest service. Important are also planning enterprises which often work for several regions and therefore manage important data as well.

On the local level the data is managed by the community itself.

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The United Kingdom

COST E33 WG2 Country Report

Recreation and nature tourism demand, supply and actual usage

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1 Introduction

Monitoring of visitors to state forests in Great Britain is required to enable effective management of resources, both at a local and national level. The public benefit from forest recreation has been accepted in the UK as one of the reasons for government funding to support forestry; data from visitor monitoring contributes to the estimation of this public benefit. Since 1999 forestry policy has been devolved to Scotland, Wales and England. Each administration has different priorities and different requirements for monitoring. Monitoring is also necessary to assess the impact of individual forestry projects, particularly those receiving external funding from various sources.

2 Current and previous surveys

2.1 All visits

Since the late 1980s, household surveys have been used to collect information about recreation in Great Britain, including visits to the countryside and to forests/woodland.

The England Leisure Visits Survey (ELVS) 2005 was the successor to UK/GB Day Visits Surveys carried out in 1994, 1996, 1998 and 2002/03. All were household surveys of adults, primarily collecting information about leisure trips from home. The surveys provide estimates of participation (the proportion of different sections of the population who have visited), the total number of visits to different parts of England/GB, and expenditure related to these trips

Each was funded by a consortium of departments and agencies, including a relatively small contribution from the Forestry Commission to ensure that woodland trips were identified. ELVS 2005 results were published in January 2007. A similar survey (Scottish Recreation Survey) has been run in Scotland since 2003. This survey covers outdoor recreation and will run for ten years.

Additional information on participation in forest recreation is available from the Public Opinion of Forestry Surveys, run every second year since 1993. This includes questions about how often the respondent visits forests for recreation, and on what facilities they would like to see there.

2.2 Visits to Forestry Commission forests

Monitoring of visitors to state forests in Great Britain has been undertaken for many years. In the 1970s and 1980s traffic counters were installed at many sites, to meet local management needs, but there was little co-ordinated activity to collate the data, there was no consistent approach to calibration, and problems were experienced with counter maintenance. There were also occasional projects involving visitor surveys (e.g. visitor centres and forest use 1981 and valuing informal recreation 1987/88) and individual surveys at some sites where recreation is important (e.g. Forest of Dean 1968).

In 1995 a co-ordinated national programme of surveys was introduced, with the aim of running similar surveys in around 12 areas of the country each year. These were on-site surveys, aimed at obtaining profile information on visitors to specific sites, including their ratings of the facilities. The national programme finished in 2001, although local on-site surveys continue to run, as required. Information collected in on-site surveys typically covers group composition, whether the respondent has travelled from home, distance travelled to get to the site, mode of transport used, frequency of visits to the site and purpose of visit. Many surveys also collect respondents' ratings of the facilities available at the site.

In 2002, a revised methodology was piloted, which aimed to estimate the total annual visitors to all state forests and provide some basic information on visitor characteristics. This has been used in Wales in 2004-05. Scotland is also adopting this approach, with fieldwork taking place over a three year period from June 2004. The information collected is similar to that collected for other on-site surveys, but also includes data on expenditure during the day of the visit.

A new methodology for monitoring the quality of experience of forest visits was introduced in England from 2003 and in Wales in 2006. This comprised a combination of on-site face-to-face interviews and self completion questionnaires to obtain more detailed information on visits. In addition to the standard questions on visitor characteristics used in other on-site surveys, the Quality of Experience surveys also collect information on the level of importance of facilities, the impact of other forest users, disturbances to the visit and compares expectations of the visit with reality. A small number of focus groups have also been carried out to follow up specific user groups in more detail.

In addition, vehicle, pedestrian and cycle counters have been used to estimate the numbers of visitors to specific sites and to monitor trends in visitor numbers. The work to monitor trends in visitor numbers was co-ordinated at a Great Britain level in the late 1990s, with data collected on a more consistent basis and a comprehensive programme introduced to calibrate the data. This led to the publication of reports analysing year-on-year changes in visitor numbers and comparing these figures to trends in visitor numbers at other comparable sites.

Prior to 2003, information on facilities at state forests was obtained directly from local Forest District offices. From 2003, data have been obtained from the Forestry Commission's website, which contains a database of all state forest sites in Great Britain and the facilities available at each site. The website database was established to promote forests to visitors, so local managers have an

incentive to ensure that the database is complete and up-to-date. As a result, the statistics derived from this source are more reliable and consistent than previously reported data in response to administrative data trawls.

3 Summary of methods used

The first three GB DVS surveys used consistent methods and were carried out by the same market research company (National Centre for Social Research). Each had carried out interviews in homes, asked about all trips in the previous 2 weeks, and collected details for up to 7 trips, giving data for about 650 woodland trips (including multiple trips by some respondents). The survey in 2002-03 was carried out by TNS Travel & Tourism using similar methods, but only recorded 441 sample woodland trips, with interviews spread evenly throughout a 12-month period. The sample was designed to provide an adequate number of interviews in Scotland, Wales and each of the English government regions. Respondents were asked about the details of trips taken from home in the two weeks prior to the day of the interview.

ELVS 2005 was carried out by Research International (RI) using a different approach, interviewing over 23,000 adults by telephone, asking about trips in the previous week, and collecting details for only one trip. Although the sample size is more than 6 times the size of previous surveys, the restriction of details to one trip means that it only had data for 663 woodland trips (about 50% more than 2002-03, but a similar level to surveys in the 1990s).

The reduction in recall period from two weeks (with results multiplied by 26) to one week (with results multiplied by 52) was expected to increase the estimated number of trips, so RI calculated an adjusted 2002-03 result using only the one-week recall part of the data. The adjustment also excluded the relatively small number of day trips from England into Scotland or Wales. However it could not adjust for any other differences in the survey methodologies or samples interviewed. Our view is that the differences in survey practices (telephone interview, changed questionnaire structure, etc) may be responsible for some of the fall in overall visitor number estimates to 2005 (and also for some of the estimated fall in visits to forests).

The Scottish Recreation Survey is a continuous recreation participation survey. It runs as part of a monthly CAPI in-home omnibus survey, with a representative sample of 1,000 adults being interviewed each month. Quota sampling based on gender, age, social class and working status is used. A set of core questions is asked each month and other questions are asked every second or third month. Respondents are asked to provide details of their last outdoor recreation trip.

The Public Opinion of Forestry uses omnibus surveys with quota sampling. This survey has been run every two years since 1993. The early surveys run in GB with a sample size of 2,000 adults. However the scope has increased over time and in 2007, four surveys were run – a UK survey of 4,000 interviews and a separate survey in each of Scotland, Wales and Northern Ireland of 1,000 interviews.

Most of the data for specific forest sites are collected using on-site face-to-face interviews. Self completion forms have also been used for some surveys. Local on-site surveys tend to be focused on the busiest sites, so the majority achieve around 100 to 200 interviews. Few visitors refuse to participate in the surveys.

For the All Forests Surveys, interviewers are used to conduct short face-to-face interviews and to count visitors entering and leaving at each access point for a representative sample of sites. Monitoring at each access point takes place over a 12-month period at different times of the day and week. As the sites covered include very quiet locations, the counts and number of interviews for an individual site can be very low. Overall, however, the survey in Wales covered a total of 765 interviews, with 85% of those approached agreeing to be interviewed and over three years of fieldwork in Scotland, over 2,500 interviews have been completed.

The Quality of Experience Surveys use a combination of methods. Each year, the survey is carried out at around 3 sites, 1 of which is a community woodland. As community woodland sites can be very quiet sites, being used by a small number of regular visitors, on-site interviewing has proved to be ineffective in gaining sufficient respondents at these sites. From 2004, a different methodology was adopted for surveys at community woodland sites, with a household survey using face-to-face interviewing being conducted in the local area. Respondents are then asked whether or not they visit the site and, if not, the reason why they don't visit. For the other sites, face-to-face interviewing is used for all respondents, with irregular visitors also being provided with a self completion questionnaire. Typically, around 300 interviews are achieved at each location. Few visitors refuse to participate. Qualitative data are also gathered from focus group sessions with selected types of visitors to the site. Counts of visitors are usually achieved using automatic vehicle or people counters.

4 Consistency and continuity

The Day Visits Surveys of households were undertaken in 1994, 1996, 1998 and 2002/3. The methodology used in the 2002/3 survey was largely the same as earlier surveys, but there were some differences in the practices used, which may have caused some inconsistency in the results. Similarly, ELVS 2005 used a different methodology to the GBDVS surveys which again is assumed to have contributed to some inconsistency in results.

Local on-site surveys are mainly stand-alone surveys, specific to the locations in which they take place. However, many of the questions used in each survey are consistent and can be used to compare results over time or between locations.

The All Forests Surveys should provide some consistency of results for Scotland and for Wales. However, given the different methodologies used, the results are not fully comparable with other surveys undertaken.

The Quality of Experience Surveys use the same questions at each site, to enable comparison between sites. The different approach now being adopted for the community woodland sites has resulted in an element of inconsistency between the results for these and other sites, but does ensure that the results produced are meaningful and, over time, will enable comparison between community woodland sites.

There have been some problems in the past with the data collected from automatic counters, mainly as a result of technical difficulties. This has led to some data not being comparable with figures for other time periods and with data for other locations.

The change in methodology for collecting data on facilities and activities at forest sites has resulted in a discontinuity of data. However, the data now published is believed to present a more consistent time series.

5 Future plans

The Scottish Recreation survey is scheduled to continue until 2013 with questions posed to the Scottish population each month. There are currently plans for national recreation surveys in England and Wales, probably commencing in 2007/8. There are currently no firm plans to repeat the All Forests Surveys in Wales or Scotland. There are firm plans for the Quality of Experience Surveys in England and Wales to continue in 2007/8, however plans for following years are not yet known. Local on-site surveys are expected to continue, as local management needs arise. The use of automatic counters is expected to continue, with new counters currently being installed at around 20 key sites in Scotland. The collection and publication of data on facilities and activities is expected to continue.

Forestry Commission,
August 2007

Appendix 1 Publications of national importance

- Christie, M., Hanley, N., Hyde, T., Garrod, B., Swales, K., Lyons, N., Keirle, I. & Bergmann, A. 2006. Valuing Forest Recreation Activities, Report to the Forestry Commission. [Electronic publication] Available at: <http://www.forestry.gov.uk/forestry/infd-6xrhul>
- England Leisure Visits 2007. Report of the 2005 Survey. Report led and co-ordinated by the Countryside Agency. [Electronic publication] Available at: <http://www.naturalengland.org.uk/press/news2007/090107.htm>
- GB Leisure Day Visits: Report of the 2002-03 Great Britain Leisure Day Visits Survey. Report to a consortium of agencies responsible for recreation and tourism in Great Britain [Electronic publication] Available at: <http://www.countryside.gov.uk/LAR/Recreation/visits/dayvisits02-03.asp>
- Hill, G., Courtney, P., Burton, R. and Potts, J. 2003. Forests' Role in Tourism - Phase 2, Report to the Forestry Commission, July 2003 [Electronic publication] Available at: [http://www.forestry.gov.uk/pdf/tourismfinal.pdf/\\$FILE/tourismfinal.pdf](http://www.forestry.gov.uk/pdf/tourismfinal.pdf/$FILE/tourismfinal.pdf)
- Monitoring the Quality of Experience in Forests (2003-2006) –TNS for the Forestry Commission. Reports on surveys at a number of sites available [Electronic publication] Available at: <http://www.forestry.gov.uk/forestry/infd-5wwjpt>
- TNS 2005. All Forests Visitor Monitoring: Survey of visitors to Welsh Assembly Government woodlands 2004. Report to Forestry Commission Wales [Electronic publication] Available at: <http://www.forestry.gov.uk/forestry/infd-5wcmr4> (similar survey in Scotland also available here)
- TNS 2007. Scottish Recreation Survey: annual summary report 2005. Scottish Natural Heritage Commissioned Report No. 220 (ROAME No. F02AA614/4). [Electronic publication] Available at: http://www.snh.org.uk/publications/on-line/comm-reports/srs_10.asp

Appendix 2. Glossary of terms.

A selection of recreation terms in English were translated into ten languages by members of COST E33 WG2 as follows:

Term in English	Croatian	Dutch	Finnish
agro tourism	Agro-turizam		
caravan site	Mjesto za kampiranje		
carrying capacity	Prihvatni rekreacijski kapacitet		kantokyky
destination of visit			
historical monument	Povijesni spomenik		
leisure		vrije tijd	vapaa-aika
nation wide recreation survey	Nacionalno istraživanje rekreacije	nationaal recreatieonderzoek	virkestyskäytön väestökysely
nature attractivity			
nature-based recreation	Rekreacija u prirodi	natuurgebieden	luonnon virkestyskäyttö
outdoor recreation	Rekreacija na otvorenom prostoru	openluchtrecreatie	ulkoilu
protected landscape	Zaštićeni krajobraz		
recreation area	Rekreacijska površina	recreatiegebied	ulkoilualue, virkestysalue
recreation demand	Zahtjevi za rekreacijom	recreatieve vraag	ulkoilun kysyntä
recreation facility	Rekreacijski sadržaj	recreatievoorziening	virkestyseseen varatut varusteet
recreation service	Rekreacijske usluge	recreatieve faciliteiten en diensten	virkestyspalvelut
recreation supply	Rekreacijska ponuda (ponuda rekreacijskih usluga i sadržaja)	recreatieaanbod	virkestysmahdollisuuksiin tarjonta
recreation value	Rekreativna vrijednost		
recreational capacity	Rekreacijski kapacitet		
recreational center	Rekreacijski centar		
recreational environment	Prostor za rekreaciju	openluchtrecreatieve aanbod	virkestysympäristö
recreational forest			virkestysmetsä
recreational landscape	Krajobraz za rekreaciju		
recreational objects and facilities	Rekreacijski objekti i sadržaji		
recreational potential	Rekreacijski potencijal		
recreational space	Prostor za rekreaciju		
recreational use			virkestyskäyttö
recreationist	Rekreativac	recreant	ulkoilija
rural tourism	Seoski turizam		
sacred place	Sveto mjesto		
spatial structure	Prostorna struktura		
tourism	Turizam		turismi
tourist			matkailija
user conflict			
visitor	Posjetitelj	bezoeker	kävijä
visitor counting	Brojanje posjetitelja	bezoekerstelling	kävijälaskenta
visitor survey	Istraživanje posjetitelja	bezoekersenquête	kävijätutkimus

Appendix 2. continue

Term in English	French	German (Austria, Germany, Switzerland)	Greek
agro tourism	agro-tourisme	Agrotourismus	Αγροτουρισμός
caravan site	camping	Campingplatz	Χώρος τροχόσπιτων
carrying capacity	capacité de charge	Beslastbarkeit	Φέρουσα ικανότητα
destination of visit	destination de la visite	Zielgebiet	Προορισμός επίσκεψης
historical monument	monument historique	Denkmal (Hirstorisches Objekt)	Ιστορικό μνημείο
leisure	loisir		Σχόλη
nation wide recreation survey	enquête nationale de fréquentation	Nationale Erholungs Erhebung	Εθνική έρευνα αναψυχής
nature attractivity	attrait naturel	Naturausstattung	Ελκυστικότητα της φύσης
nature-based recreation	activités de nature, loisirs de nature	Freiraumerholung	Αναψυχή στη φύση
outdoor recreation	activités récréatives, loisirs de plein air	Freiraumerholung	Υπαίθρια αναψυχή
protected landscape	paysage protégé	geschützte Landschaft	Προστατευόμενο τοπίο
recreation area	espace récréatif, aires d'accueil	Erholungsraum	Περιοχή ή χώρος αναψυχής
recreation demand	demande de services récréatifs	Erholungsnachfrage	Ζήτηση για αναψυχή
recreation facility	équipements récréatifs	Erholungseinrichtung	Αναψυχική διευκόλυνση
recreation service	services récréatifs	Erholungsleistungen	Υπηρεσία αναψυχής
recreation supply	offre de services récréatifs	Erholungsangebot	Προσφορά αναψυχής
recreation value	valeur récréative	Erholungswert	Αξία αναψυχής
recreational capacity		Tragfähigkeit	Ικανότητα αναψυχής
recreational center	centre récréatif	Besuchszentrum	Κέντρο αναψυχής
recreational environment	environnement récréatif		Αναψυχικό Περιβάλλον
recreational forest	forêt récréative	Erholungswald	Δάσος αναψυχής
recreational landscape	paysage récréatif	Erholungslandschaft	Τοπίο αναψυχής
recreational objects and facilities	objets et équipements récréatifs	Erholungsobjekte und -ausstattung	Αναψυχικές διευκολύνσεις & εγκαταστάσεις
recreational potential	potential récréatif	Erholungspotential	Δυναμικό αναψυχής
recreational space	espace récréatif	Erholungsgebiet	Χώρος αναψυχής
recreational use	usage récréatif	Erholungsnutzung	Χρήση αναψυχής
recreationist	pratiquant (d'une activité récréative)	Erholungssuchender	ενεργός επισκέπτης
rural tourism	tourisme rural	Ländlicher Tourismus	Υπαίθριος τουρισμός
sacred place	lieu sacré	Heilige Stätte	Ιερός χώρος
spatial structure	structure spatiale	Raumstruktur	Συγκρότηση χώρου
tourism	tourisme	Tourismus	Τουρισμός
tourist	tourist	ein Tourist	Τουρίστας
user conflict	conflit d 'usager	Nutzungskonflikte	Ασυμβίβαστο χρήσεως
visitor	visiteur, usager	Besuchende	ο επισκέπτης
visitor counting	comptage des visiteurs	Besucherzählung	Υπολογισμός επισκεπτών
visitor survey	enquête de fréquentation	Besucherbeobachtung	Έρευνα επισκεπτών

Appendix 2. continue

Term in English	Icelandic	Polish	Slovak	Swedish
agro tourism	ferðapjónusta í dreifbýli	agroturystyka	Agroturistika	
caravan site	rýmisbygging	osrodek kampingowy		
carrying capacity	útvistargildi	pojemność przewozowa		
destination of visit	útvistarframboð	cel podróży		
historical monument	verndað landslag	zabytek historyczny	historická pamiatka	
leisure		czas wolny		
nation wide recreation survey	hagsmunaárekstrar milli notenda	narodowe badania dotyczące rekreacji	reprezentatívna vzorka ponuky rekreácie	Befolkningsstudier
nature attractivity	útvistarþjónusta	atrakcyjność naturalna		
nature-based recreation	útvist	rekreacja w przyrodzie	rekreácia v prírode	Friluftsliv, utomhus rekreation
outdoor recreation	frí	rekreacja plenerowa	Rekreácie vo vonkajšom prostredí	Friluftsliv
protected landscape	þolmörk	krajobraz chroniony	chránená krajina	
recreation area	útvistarumhverfi	rekreacyjna powierzchnia	rekreacná plocha	Friluftsområde
recreation demand	dagsgestur/ ferðamaður	popyt rekreacyjny	rekreacný dopyt	Efterfrågan på friluftsliv
recreation facility	útvistarskógur	rekreacyjne zaplecze	rekreacná vybavenost	Friluftsanläggning
recreation service	útvistaraðstaða	rekreacyjne usługi	rekreacné služby	
recreation supply	helgarferð	podaż rekreacyjna	rekreacná ponuka	Utbud av friluftsliv
recreation value	þolmörk útvistar	rekreacyjna wartość	Rekreacná hodnota	
recreational capacity	útvistarmöguleikar	pojemność rekreacyjna	Rekreacná únosnosť	
recreational center	útvistarrými	centrum rekreacyjne	Rekreacné stredisko	
recreational environment	náttúrutengd útvist	rekreacyjne srodowisko	rekreacné prostredie	Rekreativsmiljö
recreational forest	útvistasvæði	las rekreacyjny		
recreational landscape	gestatalning	krajobraz rekreacyjny	Rekreacná krajina	
recreational objects and facilities	útvistarmiðstöð	rekreacyjne objekty/ przystosowania	Rekreacné objekty a zariadenia	
recreational potential	útvistaraðstaða og hlutir	potencjal rekreacyjny	Rekreacný potenciál	
recreational space	útvistarlandslag	przestrzeń rekreacyjna/ turystyczna	Rekreacný priestor	
recreational use	útvistareftirspurn	użytkowanie rekreacyjne		
recreationist	náttúruaðrægni	rekreant	rekreant	Friluftsutövare
rural tourism	ferðapjónusta	trurystyka wiejska	Vídiecka turistika	
sacred place	minnisvarði	miejsce święte	religiózne miesto	
spatial structure	helgur staður	struktura przestrzenna	priestorová štruktúra	
tourism	hjólhýsastaður	turystyka	Cestovný ruch	
tourist	gestur	turysta		
user conflict	heimili gests	konflikt użytkownika		
visitor	útvistarmaður	gosc	návštevník	Besökare
visitor counting	könnun meðal gesta	liczenie odwiedzających	scítanie návštevníkov	Folkräkning
visitor survey	þjóðarkönnun um útvist	obsługa gości	ponuka návštevníkom	Besökarstudie

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