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# EUROPEAN FOREST RECREATION AND TOURISM



A HANDBOOK

EDITED BY  
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Edited by  
Simon Bell,  
Murray Simpson,  
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and Ulrike Pröbstl



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# 7 Strategic planning of forest recreation and nature tourism

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## Introduction

This chapter, being the first in Part III, is intended to demonstrate how the materials presented primarily in Part II can be applied to the strategic aspects of recreation and nature tourism planning in Europe. As well as the aspects brought from Part II, other requirements and issues will also be covered such as the likely effect of different drivers of leisure and recreation that are currently affecting society across Europe and are likely to set the scene for the next couple of decades, as discussed in Chapter 1. Likewise, the ways that people participate in forest recreation and nature tourism vary from one European region to another, based on a number of factors which together can be called 'forest culture'. Given the benefits and values of recreation identified and demonstrated in Chapter 2 in Part I, it is also worth examining how strategic planning can use the evidence of these in order to target supply of recreation where there is likely to be most benefit to society.

## Definition of terms

In general terms a strategy is a long-term plan of action designed to achieve a particular goal.

Any strategy is therefore different from immediate actions. Strategies help to make a problem or problems easier to understand and solve. By contrast with tactics, strategies are proactive and not reactive. The outcome is normally a strategic plan which is used as guidance to define functional and divisional plans, like development plans, management plans or marketing plans. Various analysis techniques can be used to help define the problem and to explore the issues in strategic planning, including SWOT analysis (Strengths, Weaknesses, Opportunities and Threats) and PEST analysis (Political, Economic, Social and Technological analysis).

Typical questions to be addressed when determining the scope and level of a strategy include:

- Which study areas have to be covered?
- Which time periods have to be covered?
- What depth is required?
- What data and information are needed and available?
- Which methods should be considered?
- What alternatives and options should be considered?
- Which entities and experts should be involved?

In the Directive on the Strategic Environmental Assessment (SEA) 2001/42/EC the European Commission has contributed to the definition of strategic plans on a governmental level. Strategic plans which are to be assessed are those:

- which are subject to preparation and/or adoption by an authority at national, regional or local level or which are prepared by an authority for adoption, through a legislative procedure by Parliament or Government; and
- which are required by legislative, regulatory or administrative provisions.

The term 'strategic environmental assessment' (SEA) means the preparation of an environmental report; the carrying out of consultations; the taking into account of the environmental report and the results of the consultations in decision making; the provision of information on the decision, as stated in the SEA Directive (SEA Directive, Article 2). In addition, the term SEA refers to monitoring the cumulative environmental effects of the programming document during its implementation, in accordance with the basic requirements defined in the SEA Directive.

The term strategy, as it will be used in the context of this chapter, refers to the way that decision makers, ranging from individual landowners to local, regional, federal or national authorities, decide between, or rank, management alternatives and allocate land-use priorities. In forestry planning, when the total value of a forest is calculated, including both wood and non-wood goods and services, the profit-oriented forest owner, when carrying out planning, tends to consider only those forest products for which he can expect a market price; non-market forest goods and services, related to tourism and recreation, are provided as positive externalities of the production of market goods and require larger scales to be incorporated in the strategic planning.

There are three types of main strategic approach involving the planning of recreation and nature tourism. The first is a general forestry-based planning system where all

aspects of the forest are considered, recreation and tourism being only one or two of the possible range of values to be taken into account and balanced in terms of priorities. The second variety is where a specific recreation strategy is developed that may apply only to forests or to a broader range of land-use types such as water areas, moorland, mountain and coast. In this case the emphasis is on recreation as a specific resource value and the aim could be to define which areas are best suited for what types of development over time. This planning could be carried out by a forestry organisation or by an agency more concerned with the wider countryside. The third variation is where a tourism organisation develops a strategy which includes nature tourism and forest recreation among a number of other developmental themes and works together with the forestry or countryside management agencies. These will be illustrated by examples of each type later in the chapter.

While forest, recreation and tourism strategies may be prepared for large geographic areas, forest management takes place at a stand level and it is important to recognise that silvicultural interventions, such as thinning or felling, alter forest characteristics such as stand structure, tree species composition and developmental stage, and that these forest characteristics in turn influence the quality and quantity of public goods and services a forest provides, such as visual landscape/scenery, space for recreation, clean water, CO<sub>2</sub>-storage capacity, erosion control and air purification. Thus there has to be a link between the strategy and the operational planning which is frequently mediated by the forest management unit planning process (see Chapter 8). This factor demonstrates that there may also be different organisations or organisational levels responsible for implementing a strategy.

Recreation-led or tourism-led strategies do not necessarily have to coincide with strategies for timber production, water and air purification, biodiversity protection etc, although some types of recreation activities may not be compatible with other forms of management, such as biodiversity protection. Thus some integration between each type of strategy is

necessary. Research studies can show to what extent management activities may affect the provision of different goods and services. Different tools such as GIS or visitor surveys are increasingly used in forest planning to support the development of land-use visions and policies at a regional scale (Köchli and Brang 2005).

When forest recreation planning is carried out as part of wider strategic forest planning, which may be the most common approach at the present time within the context of multiple use planning and management, planners have to decide how important are the recreational uses compared to other types of forest utilisation, and/or how important are the forests of different areas for recreation, leisure and tourism. Each strategy for forest recreation needs to be evaluated in its societal context as well as in its economic framework including tourism. Strategies for forests and the strategies for recreation and tourism do not necessarily have to occur together but their results have necessary reciprocal consequences depending on the national or regional context.

Strategic planning is normally carried out to cover the longest time period of planning types and therefore is considered to be long-term planning, perhaps from anywhere between 5 and 15 or 20 years, though usually subject to frequent review and rolling revision processes. Strategies may also be more-or-less spatial, with maps showing key areas of recreation or tourism development, or be rather aspatial, presented more as broad goals and targets to be interpreted spatially at a lower territorial level. Where a range of organisations are involved at different levels the implementation may be complex, for example when a tourism strategy is prepared by a ministry of tourism but sections related to nature tourism will be implemented by a forestry service. Good communication, a 'buy in' by each organisation and a good understanding of what steps are needed to implement the strategy will be essential if the goals are to be met to everyone's benefit.

This chapter will examine the context in which strategic planning operates in different areas of Europe, using the regional approach described in Chapter 1. This sets the scene for the application of data obtained from demand

and supply evaluations which should be used to help locate the right sort of recreation opportunities to satisfy the different market segments and population patterns, matching them with the forests available in a particular area. The strategies, in order to be successful, may make use of the various mechanisms described in Chapter 4 – so as perhaps to ensure that forest resources in private ownership are made available in key locations. The rest of this chapter will examine a range of different approaches illustrated by some key examples and will demonstrate the application and benefits to be gained by implementing inventories and monitoring processes concerning forest recreation as described in Chapters 5 and 6 in Part II.

### **Legal frameworks for strategic planning**

Strategic planning needs a legislative framework or legal instruments to drive it and to set the framing conditions, the timescales and the legal force of such plans. In forestry planning in most countries the forest laws set these conditions. Forest laws in Europe have long histories, and have been subject to frequent revision and amendment reflecting new social, economic and environmental trends. As a consequence, they vary in the degree of adaptation for the purposes of strategic planning and in their structures and content. The character of laws and policies has tended over the last 10 to 20 years to become much more orientated towards multi-purpose forest management (as described in Chapter 1), incorporating sustainable forest management and public participation in the state sector together with some similar requirements or policies for the private forestry sector. However, not all forest laws or policies incorporate or allow for a national, federal or regional strategy incorporating recreation and nature tourism.

A review of seventeen national regulation systems connected with forest recreation planning enables a cross-European comparison of tools available for this aspect to be made. Most of the countries in this review promote the multifunctional use of the forest with outdoor

recreation being an integral and often important recognised function; only in some northern countries, where timber production remains the number one objective, does recreation feature less obviously in strategic planning. This means that in general, social functions of forest management, including recreation and tourism, are recognised by all European countries. The main legal instrument that concerns forest recreation and tourism planning at a national level is usually a National Forest Act or Federal Forest Act of some sort and the recreational aspect of forest management may be presented within this legislation in a very general way, frequently through a description of access rules to forest land. All legal instruments can be found on the FAO FAOLEX metadatabase (FAO) and is the source for references unless noted otherwise in the following sections.

For many countries forest recreation is particularly referred to in legal frameworks in connection with areas around cities or densely populated regions. In a number of different regulations at both national and regional levels, for example, forests close to urban areas are dedicated to recreation. These include Austria (Austrian Forest Law 1975 (Voitleithne 2002)), Norway (Manual for Urban Forest ('Marka') Planning DN 2003), Poland (Forest Act 1991, 2005) and partly in Sweden (Forestry Act 1994 (Skogstyrelsen 1994)), Ireland (The Neighbour Wood Scheme (Irish Forest Service 2008)), the Netherlands (Long-term Forestry Plan and the Forest Policy Plan 1984, 1993), but also in the Scottish Forestry Strategy (Scottish Executive 2006) and in Greece (Strategy Plan for Forestry and Development Programme 1986). Each of the European regions also tends to have similar legal regulations or strategic approaches:

#### *The northern European countries*

The laws in the northern European countries with generally easy access to the forest as a result of having the traditional 'Everyman's right' of access point towards the modern approach, where the forest brings opportunities for recreation and nature tourism for all citizens (Finland, Norway and Sweden) and where forest

managements also has to take into account the public demand for forest recreation (Sweden). In Norway an interesting planning tool is the manual dedicated to forests around towns and cities (Manual for Urban Forest Planning, DN 2003) noted above with a specific aim to facilitate outdoor recreation, and also the Living Forests standard, where outdoor recreation has an important aspect (Living Forests 1998).

#### *The central European countries*

Here the approaches vary. In some countries such as Austria and Switzerland the main regulation is found in one single forest act (Austrian Forest Law, 1975 and the Swiss Federal Forest Law 1993). These acts describe accessibility to the forest and stress the social multifunctional role of forests. However, they do not specifically concern planning strategies for forest recreation. The same approach is in Germany, where each Lander (Federal state) has its own way of approaching things, but the Federal Forest Act (1975) is in some ways similar to eastern European (Lithuania, Poland) countries where forest recreation is related to traditional uses of the forest such as gathering of mushrooms and berries.

#### *The eastern European Countries*

In eastern European countries two groups of regulations are found to cover the subject of strategic planning for forest recreation. The first group is connected with generally protected areas where, among other types of land, forests predominate. These are Law of Nature Conservation or Protected Areas, that describe the rules of recreation use and the offences and penalties for misuse, for example found in Hungary, Poland and Slovakia. Lithuania has, in addition, rules for forest visitors which include the definition of what is a forest visitor and general rules of forest accessibility (Rules for Forest Visitors, 1996). The second group of regulations is related directly to forest management (Hungary), and forest recreation planning strategies are part of the Forest Plan Manuals in Poland and Slovakia.

### *The Atlantic countries*

In the Atlantic countries recreational accessibility is an important aspect of forest planning. In Flanders in Belgium the Implementation Act on accessibility of forests and nature reserves (2008) contains guidelines for different types of users and owners to fine-tune recreation, while the Strategy for England's Trees, Woods and Forests (DEFRA 2007) contains the programme of Forestry for Recreation, Access and Tourism which has a priority to secure greater access to the open countryside. This is divided into regional forestry frameworks which bring the overall strategy down to a more local level reflecting local priorities and needs. In this particular case, UK forestry is devolved to each country – England, Scotland, Wales and Northern Ireland. In each country recreation is an increasingly important aspect of forestry policy and management. However, the main legal development to affect recreation is recent legislation to open private forest land to public access – along with moorland and some farmland, and also legislation on accessibility by disabled people. While these do not require or facilitate strategic planning as such, they do affect what landowners need to consider in their overall management at a strategic as opposed to operational level. More is described about the strategies for some of these countries in a later section.

The urban population is also one of the targets of The Danish Forest Act (Act No. 383 of 1989), promoting the expansion of forests, especially close to where people live. The Act defines 'good and multiple-use forestry' as management with due regard to increasing and improving wood production as well as nature conservation, landscape, historical values, environmental protection and recreational interests, and determines that a special emphasis must be given in public forests to recreation.

The strategies of afforestation in this region are also strongly connected with the expansion of forest recreation provision. In Ireland the main point of policy (Strategic Plan for the Development of the Forestry Sector 1996) was to encourage forest owners to develop recreational facilities; owners were offered incentives

to do this through grant aid. A parallel approach is in the Farm Woodlands Premium Scheme and Woodland Grant Scheme in the UK (2000) now developed into the grant schemes for the individual countries, and in Flanders, Belgium, (Implementation Act on subventions, 2003) where regulation is focused on increasing afforestation and accessibility for recreational needs, particularly play areas for children and young people, also reflected in Denmark (Forest Act 1996).

The last important point common in legal acts in the Atlantic countries is the fact that the needs of recreation are also associated with policies for landscape plans. In the Netherlands and Flanders, Belgium, some regulations are dedicated to the protection of recreational values while ensuring the aesthetic role of the landscape (Landscape Act). Also in the Netherlands the concept of the National Ecological Network introduced in 2000 pointed to the important role of ecological values of network elements but also seeks for these to become the recreational backbone of the country.

### *The southern European countries*

The southern European countries have a wider variety of approaches to strategies planning of forest recreation. Scrubland (maquis etc.) represents a very important component of the landscape managed by forest services, and sports and adventure in nature are important segments of outdoor recreation. While in Spain recreation is covered in a very general way (National Forest Programme, 2002), in Italy a similar approach to the Atlantic countries can be found where forest regulations are connected with landscape planning and recreational aspects are combined with aesthetic values particularly at a regional level (Nature and Landscape Act 1985, Regional forest law of Bolzano 1996, Rural development programme in Trento 2000). These are aimed at guaranteeing the aesthetic and recreational functions of forests. The recently approved Portuguese National Strategy for Forests defines the recreational function as being specifically associated with forests located on the Atlantic coast and in nature conservation areas. Recreation

associated with forests is intended as a new challenge for the regulation and reduction of tourist pressure on the coast, but it is also recognised as an alternative for traditional agricultural rural communities which are in an accelerated process of abandonment. Ten Regulatory Decrees convert this national strategy into Regional Plans of Forest Management.

New developments across Europe have seen the introduction of legislation covering subjects related to recreation and nature tourism such as the establishment of protected areas, policies for mountain regions and rural development emphasising tourism as an alternative to food production. The increasingly complex regulatory framework of forestry reflects the current multiple roles of forests in promoting sustainable development, with forest recreation and tourism being one of the most prominent roles in many countries, especially those with large urban populations and small amounts of accessible forest.

Over the last decade in particular, the most dramatic changes in forestry legislation and policy development have taken place in central and eastern European countries, especially those of the former Eastern bloc, which are in the process of promulgating a profoundly modified system of forest, nature conservation and environmental protection legislation. Changes to forest landownership, for example the restitution of state land to the former pre-war owners or their descendents, has transformed the responsibilities for forest policy and affected access rights. Large amounts of what was state land accessible for recreation around cities such as Riga or Tallinn, for example, is now privately owned and subject to development pressures. It may also be less managed compared with state-owned forest, or have been exploited for timber much more radically than has state land in the same area (clear cutting of old stands for example). Conversely, depending on the particular situation in a country, developing laws and policies increasingly refer to government support, the integration of forestry with related activities or protection against fires and other adverse effects from natural or anthropogenic risks. Some examples from different countries presented later in the chapter will demonstrate

how the legal frameworks affect recreation and nature tourism.

### **The economic, social and cultural context of strategic planning for forest recreation**

Over recent decades, changes in forestry practice, forest policy and planning in Europe have reduced the dominance of the 'industrial' forest, in which the emphasis was placed on timber production as the primary objective, relative to that of social and environmental services, such as recreation. In many parts of Europe, forests have become far more important as spaces for the consumption of recreation and other amenities (wildlife watching, landscape experience, psychological restoration) by a large urbanised population, as part of a new trend towards a 'post-productivist forest' (Mather 2001). It is a consequence of specific social, economic or political circumstances experienced by different countries, demonstrating at the same time certain trends at a regional level as noted above. In a number of European countries, new forest legislation has been adopted or major revisions and amendments of forestry-related laws have been implemented during the last two decades. The latter refers in particular to more comprehensive objectives of forest management and conservation, in which regulations related to management and utilisation stipulate more clearly the need to balance timber production and other values such as recreational uses and the protection of forests for soil and water conservation and to protect against impacts from natural disasters (Schmithüsen 1997a).

There is no European geopolitical pattern of the importance of forest and forestry revenues to national economies. The forest sector is important in the economy of such diverse countries as Portugal in the south or Norway in the north. However, a pattern occurs differentiating the importance of tourism (particularly international tourism) in the economy of these two countries, being more important in Portugal than in Norway. The relationship between the economic values of the forestry and tourism sectors distinguishes countries in terms of the

need for different strategies for forest recreation planning. Often forest recreation does not provide an income to landowners and in many cases the people who benefit (small entrepreneurs) do not own the forest. In the UK, the Forestry Commission is the largest provider of countryside recreation and it also operates a significant commercial recreation business, known as 'Forest Holidays'. A number of economists consider that the addition of consumer surplus values from informal recreation could increase the internal rate of return above a test discount rate of 6 per cent in some cases and produce positive net present values, in contrast to negative ones for timber production alone – in the case of British forestry (Benson and Willis 1993). This issue of who provides the space but who benefits from recreation and tourism income is quite important in strategic planning and the application of different instruments, particularly in the case of achieving recreation objectives from private forests. In countries with a large state forestry sector, such as Poland this is not as difficult as in a country where the majority of the forest is in private ownership, such as Denmark. The available supply of accessible forest relative to where the population live was presented in Chapter 6 and reinforces the need for this factor to be taken into account in strategic planning, as will become clear from several examples described below.

Forest recreation planning strategies of whatever type, whether specific to recreation or tourism or incorporated within broader forestry or land-use planning strategies, ranging in scale from the regional to national/federal level, are particularly important tools for identifying and solving conflicts and for considering the implications of future changes in trends and drivers of leisure and recreation in society as a whole. This could also be considered from the opposite perspective from proactive recreation planning as being valuable for conflict management and monitoring in the face of past and current human-related threats to sensitive forest landscapes. The preparation of strategies also has technical requirements such as the availability of decision models, information systems and expert forums, which can contribute to reducing or solving problems or



7.1 In many cases the forest owner does not benefit directly from recreation or tourism if the forest access is free or if it is a major element of an attractive landscape. Other recreation or tourism ventures may benefit financially from this directly or indirectly. Photo: Simon Bell.

difficulties. Political requirements such as acts, plans, regulations or conventions are important for influencing procedures and establishing principles and rules.

The institutional frameworks in the central and eastern European countries are changing following the breakdown of the socialist systems, changing property and use rights (Kissling-Näf and Bisang 2001). Also the use rights for the public due to growing needs in leisure activities and nature protection are changing, such as in the case of recent access legislation in the UK, the new statutory right of access on foot for open-air recreation to mountain, moor, and heath and down, and to registered common land. Today, the public has a legal right of access to forests in Finland, Norway, Sweden and Austria, Denmark, Belgium (Flanders), Germany and Switzerland, and access is tolerated in Portugal, Spain, France and Italy (see the discussion in Chapter 1). Other institutional changes result in the state gradually withdrawing from forest management activities, such as the case of the Portuguese strategy for the restoration of areas burnt in 2003, where recreation and landscape quality is one of the five principal functions in the new forest management models, as well as production, protection, nature conservation and range

management, hunting and fishing. Another special case is the common-property regimes associated with forests and which arose over the centuries in many mountainous areas of Europe. Here the users of timber and recreation hold private rights to use a given forest and come to some agreement on compatible uses which meet their competing interests. Communal forests, a significant category in France, for example, are now also of considerable value for recreational uses in urban and peri-urban regions, an asset for tourist developments in rural areas, and of importance in order to protect clean water resources (Schmithüsen 1997b).

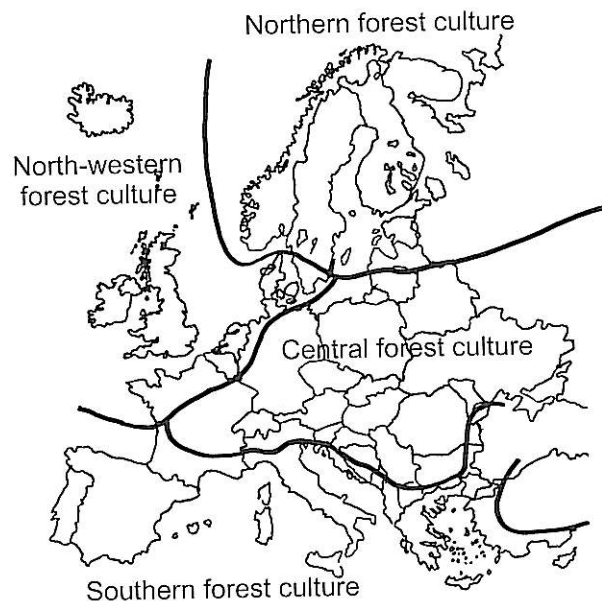
### *The different European traditions of using forests for recreation*

At a strategic level the key issues to reconcile are the demand for recreation and tourism of various types by different groups of people and the supply of opportunities to fulfil this demand. However, when attempting to paint a European level picture of this it is impossible to ignore a number of fundamental cultural differences that occur, not only at the level of individual countries but also regionally across Europe. In Chapter 1 an analysis of regions within Europe

was presented as the main starting point for the discussion in this book. These regions were derived from the data collected in a questionnaire and make a distinction between countries partly on the basis of the old divisions between east and west, reflected in the different approaches to recreation planning and management and in recent changes following the fall of communism. A slightly different approach to regionalization of forest cultures was developed some years ago and presented in a book on urban forests and trees (Bell *et al.* 2005). The description of these different cultures remains valid and offers a useful explanation of why strategic planning is carried out so differently in different parts of Europe. Figure 7.2 shows the rough boundaries of these regions which can be compared with those of the regions presented in Chapter 1 and used more regularly throughout the book.

#### THE NORTHERN FOREST CULTURE

This covers Norway, most of Sweden, Finland and the Baltic states of Estonia and Latvia, extending into northern Russia. Here the forest is a major element of the landscape and the national economy, and in the everyday lives of the people. Cities such as Stockholm, Oslo, Helsinki, Tallinn or Riga are set within and



7.2 Map showing rough boundaries of European forest cultures. These do not exactly follow the regional divisions identified in Chapter 1 because they do not include the results of political history. Source: Simon Bell.

surrounded by large tracts of forest, which expand beyond the urban boundary. The cities have expanded into the forests and the people go out into them almost as much for mushroom and berry picking as for walking or skiing. Much of the national culture is connected to the forest and people like to spend large parts of their summer holidays in the countryside and forest. 'Everyman's right' of access to the forest, whether in public or private ownership, is a key aspect and the populations of these countries are quite small, so that there is often less pressure on the forest – per capita amounts of forest are the highest in Europe. Traditionally people are brought up to visit forests and usually in small, often family groups. Most people feel quite comfortable in forests with few facilities and hiking alone along a simple path is quite common. The lack of visitor pressure and the desire for freedom and solitude leads to a different approach to forest recreation or nature tourism planning in these regions compared with some of the others described below.

#### THE CENTRAL EUROPEAN FOREST CULTURE

This covers those countries such as central France, Wallonia (Belgium), Germany, Austria, Switzerland, northern Italy, the Czech Republic, Slovakia, Hungary, Poland, Lithuania, Romania, Slovenia, parts of Serbia and Bulgaria and extending into Belarus, Moldova and Ukraine. The countries have a mainly continental climate but with milder winters and warmer summers than the northern countries. The landscapes are quite forested but not so heavily as in the north, and the woods contain a higher proportion of broadleaves and have been historically intensively managed. Many cities, such as Stuttgart or Vienna possess significant wooded tracts but these lie mainly at the periphery and may be former royal or aristocratic hunting estates with a long history of management and use. The people of the cities use these woods intensively for all kinds of recreation and the woods may be under considerable pressure. The countries such as Germany which are heavily populated and also contain a number of large ethnic minorities face different problems from those in the zone which are less densely populated or have more forest per capita, such as Poland. In



7.3 In the northern countries people have a very close connection with the forest and they like to go for walks by themselves or in small groups. Children learn to be confident when in the forest from an early age, as here in Finland. Photo: Tuija Sievänen.

some countries, such as Poland and Lithuania, people are keen on mushroom and berry picking but this is generally much less prevalent than in the northern countries. Forests are also associated with fairy stories and many of those present the forest as a dark place inhabited by strange and frightening creatures (e.g. the Grimms' *Household Tales*). In the mountainous areas of the Alps and Carpathians special types of forest management and pressures from visitors occur and have to be accounted for in strategic planning. These regions are also important for both winter and summer tourism.



7.4 Mushroom collection is an important element of forest recreation that also provides food and business opportunities in countries such as Poland. Photo: Agata Ciesiewska.

**THE SOUTHERN FOREST CULTURE**

This zone occurs in the mainly Mediterranean countries, including southern France and also Portugal as well as Spain, most of Italy, Greece, Cyprus, Croatia, Bosnia-Herzegovina, Montenegro, Macedonia and parts of Bulgaria and extending into Turkey. The Mediterranean climate of hot summers and warm winters means that people live outdoors for a lot of the time, so that street trees, parks, squares and woodlands provide much needed shade. Forests may be significant in mountainous or hilly parts such as the Apennines or the mountains of Greece and in places where land abandonment and rural depopulation are occurring, such as parts of Portugal, forests are starting to recolonise old farmland. Close to cities most forests were once reserved as hunting parks and are now used for recreation. The forms of recreation tend to revolve around family outings rather than seeking solitude, and picnic areas can be crowded places in summer, in stark contrast to the northern area. In these countries the urban culture has grown apart from the forest culture. Fire is a major threat to forests with a high degree of public use and this is one of the main driving forces behind forest recreation planning and management. Recent

devastating fires in Greece and other parts of the Mediterranean demonstrate how important this aspect is.

**THE NORTH-WESTERN FOREST CULTURE**

This area includes Britain, Ireland, Flanders (Belgium), the Netherlands, Denmark, southern Sweden, north-east France and Iceland. These countries lost most of their forest cover over the last 3 to 4 thousand years, so that forests now occupy a very small percentage of the land area. Many forests are now of plantation origin and are intensively used. In popular culture forests are sometimes seen as alien places, so that urban people are less spiritually connected to them than in the northern zone, for example. These are also highly urbanized and industrialized countries with dense populations who need space for recreation, but where private land is not always available for public access. This aspect of intensive public pressure versus scarce forest resource, often located in regions remote from the main centres, has led to a much more proactive approach to recreational development where national policies in many countries are directing the creation of new forests in locations closer to where people live (see below). These countries may also have a



7.5 In the southern countries people like to go on a big family picnic to escape the heat and to socialise. The risk of fire means that picnic sites are designed for a lot of people and not to allow solitude and remoteness, which are in any case not desired by most visitors. Photo: Simon Bell.



7.6 In the north-western countries, such as here in the Netherlands, forests are often small and near to urban areas so that the sense of being in a wild area is not so easy to experience. Photo: Rob de Wind.

very diverse population with many ethnic groups for whom visiting forests or natural areas may not be part of their culture.

#### *Drivers of recreation and nature tourism*

In Chapter 1 a number of drivers likely to affect the development of recreation and nature tourism over the next 20 years or so was presented and discussed (Henley Centre 2005). These are very important factors to take into account in strategic planning. In the next section some of the implications of these will be examined.

#### **DEMOGRAPHIC CHANGES**

It is difficult to underestimate the impact of this driver over time. Many statistics demonstrate the major effect of demographic changes (Eurostat), such as population reduction in rural areas in many parts of Europe. At a strategic level of an individual country demographic projections can be used to try to predict the way in which changes will affect recreation demand, so that future provision can be better tailored for it. The use of census data over time will show how the trends are manifesting themselves while surveys of users will help to determine how different user groups are developing and affecting demand (see section on the use of demand monitoring below).

#### **THE AFFLUENT SOCIETY**

With increasing affluence of different social groups and as affluence in general increases, reducing the differences between countries,

overall expectations of quality are likely to increase and the demand for specialist types of recreation is expected to grow. Since trends tend to change quite quickly, at a strategic level these need constant monitoring and a degree of responsiveness needs to be built into strategic planning together with mechanisms that facilitate opportunities for recreation and tourism businesses to take advantage of these changes.

#### **HEALTH AND WELL-BEING**

The interest in the role of the environment in human health and well-being, especially in improving health by increasing exercise and reducing stress is likely to increase over time. As the evidence base improves there are likely to



7.7 Social change means that recreation strategies have to recognise the changing market – such as the need to increase physical activity among the population of urbanised countries. Photo: Rob de Wind.

be major opportunities to provide forest areas and other green spaces in locations and with facilities to encourage their use for health and well-being. It may even be the case that health agencies desire recreation providers such as forest owners to work with them to use the forest as part of a suite of health interventions. At a strategic level this should be considered among the benefits and goals of recreational provision.

#### **RE-SPIRITUALISATION**

As people wish to become more connected with nature, and as aspects such as 'nature deficit disorder' are recognised, strategic planning can aim to supply certain qualities of forest that provide such opportunities. Forest close to where people live is once again important in this regard, as well as forest of a particular character that is as natural as possible.

#### **GLOBALISATION**

The desire of people to counteract the pressure of globalisation which leads to sameness – the 'McDonaldisation' of the landscape – leads to the demand for authentic experiences which reflect local and regional differences and specialities. Forests and cultural landscapes, local products and other services therefore need to be considered in strategic planning. This is particularly relevant in tourism strategies (see example below).

#### **BALANCE OF WORK AND LEISURE**

As people are on the one hand more flexible in their working patterns yet on the other hand seem to be under more and more pressure, this could manifest itself in leisure trends in several different ways. One is the spread of use of forests for recreation from weekends and traditional holiday periods to a pattern of usage more-or-less all the time. A second possibility is for people to wish to take part in intensive activities in order to overcome the stresses this new working pattern brings. Both have implications for what is provided where and how it is managed which will inform strategies. In particular, these trends may affect particular social groups more than others.

#### **THE INFORMATION AND KNOWLEDGE SOCIETY**

The trends likely to affect strategic planning are associated with the way people plan their leisure activities – at short notice, and very flexibly – and also their expectations of availability of activities in convenient locations and at convenient times. The information society with the new communication tools enables virtual communities of interest in particular forms of recreational interest to develop which is likely to have an effect on the demand for specific and possibly ephemeral (in terms of the duration of popularity) activities which can strongly affect strategic planning.

7.8 Part of strategic planning should include reflecting the unique and characteristic landscapes and cultures as a counterbalance to the forces of globalisation, so that visitors can find and enjoy new and different places within Europe, such as here in the Latgale region of Latvia where life seems to carry on at a different pace. Photo: Simon Bell.



**ENVIRONMENTAL AWARENESS**

Strategic planning can reflect the increasing environmental awareness by tapping into the willingness of citizens to participate in decisions at many levels, not only the local, and to strengthen support for measures that may restrict recreational access, because people understand the need for this action.

**CHANGES IN FOREST MANAGEMENT**

As new pressures for forest management, such as the need to produce green energy, affect some aspects of multifunctional forestry, there may be a sense in which attention becomes diverted away from the importance of recreation and nature tourism towards other topical issues. This must not be allowed to happen because of the evidence presented in this book about the values and benefits. Planners need to be able to sit back and take a longer view of all the main issues before being tempted to jump on the latest bandwagon which, as in any form of decision making in forestry, takes a long time to manifest itself in forest structure and composition.

**Information base for strategic planning**

A variety of information is needed for strategic planning. It is necessary to know the volume and quality of recreational use of forests and what contribution the recreational use contributes to the well-being of the individual and of society. It is important to understand the economic, social, health and cultural benefits that forests offer. Chapter 2 of Part I described and demonstrated how the values and benefits of forest recreation and nature tourism can be calculated. As part of strategic planning it is often necessary and desirable to be able to demonstrate and argue the relative merits of the different values attached to a given piece of land. When recreation is only part of a wider land-use strategy this becomes more important. The various approaches to ascribing economic value to non-market benefits also have a major use here as they enable different weightings to be given to the multiple objectives that have to be taken into account. While the valuation of non-market benefits may relate to current

conditions, the identification of trends described in Chapter 1 and whose implications were discussed above may help to determine whether such values are likely to increase or decrease over time. In broader strategies, for example, where the wider rural economy is under consideration, the identification of benefits among different actors is likely to be important for ascribing the overall balance of equity arising from the different sectors who participate, such as landowners, providers of accommodation, providers of services and so on. This can then be used in the application of different instruments to help promote and implement the strategy, such as incentives to landowners or grants to small-scale start-up businesses.

In Chapter 5 of Part II a discussion of visitor demand surveying and monitoring was presented. This showed a number of approaches to collecting information about what the populations of various countries want from forest recreation or nature tourism. This information is vital for any strategic planning because without it providers are working in the dark. How does a forest service plan its investments? How does it know what activities to provide for in what places? How does it know if the patterns of demand are changing from year to year or decade to decade? Forest recreation in some countries equates with countryside recreation – for example in Finland, almost all outdoor recreation is somehow connected with the forest – whereas in others, such as the UK, forests form part of a larger package of outdoor recreation opportunities including mountains, farmland, the seaside and large country house parks. Moreover, outdoor and forest recreation are only part of the wider leisure choices of the population, competing with theme parks, zoos, shopping centres and many urban attractions. The uses made of the forest shift as the attractiveness of these competing activities also shift over time.

Population-wide recreation demand surveys can be carried out in their own right as special one-off surveys and both are valuable; in fact it may be the case that both are necessary because together they give a fuller picture than either on their own. Nature-based recreation and tourism issues get a broader perspective

and more value when they are also part of a broader household survey that enables leisure aspects in the wider social and economic sector to be understood. Thus, the contribution of forest recreation to the bigger leisure picture can be identified. Important is to conduct demand surveys frequently in order to monitor changes and to produce trends in behaviour patterns.

On-site surveys are valuable as they enable monitoring of visitors' actual use patterns and changing preferences to be identified on a regular basis. For example, in the UK there has been a system of visitor surveys of different forest areas carried out regularly over several decades. Each year a different sample of forests are surveyed. This enables managers to respond very quickly to changing patterns in levels of visitor numbers and in activities. The drawback of this approach is that it does not reach people who do not visit forests but who might do if better promotional or outreach activities were undertaken to increase participation levels. These types of survey, although carried out at a site level, are a very good way of observing the changing trends of recreation in practice and can be used to inform the strategies seeking to be more responsive to the types of trends described in the previous section.

As well as recreation surveys – basically aimed at the domestic recreational public – tourism agencies often carry out marketing surveys to find out what places and activities attract tourists. In the development of new sectors such as nature tourism such surveys are very valuable and help entrepreneurs to develop their products which in turn can be marketed in the best way. In Cyprus, for example, the tourism ministry promotes the natural qualities of Cyprus as part of its tourism strategy (Metaxas 2005). This is linked closely to the activities of the Ministry of Forests and their provision of recreational facilities (see example later in the chapter).

The assessment of demand, if carried out using some of the techniques briefly described above and presented in Chapter 5, has to be balanced or matched with the supply of recreational opportunities. This includes the supply of accessible forest land for recreation as

well as the supply of facilities needed to enable people to participate, whether car parks, picnic sites, trails or campsites for example. Chapter 6 of Section Two discusses the methods of assessment of recreation supply.

At a strategic planning level the supply of land may be a critical factor in some places but not in others. Finland, being over 70 per cent forest, has no shortage in general although some urban areas may not be as well supplied as others. The relatively low population for the large amount of forest means that there is also plenty to go around. However, since the forests are also heavily exploited for timber production not all this forest may be available for recreation, especially key forms of recreation which need natural forest landscapes in order to experience a closeness to nature or wildness. Thus, strategic planning must consider the interactions of land-use priorities as they change in space and time, ensuring that some forest areas are protected from intensive timber harvest – the National Hiking Areas being an example of how this is achieved in Finland (Metsähallitus).

In some countries the crucial factor of forest recreation strategic planning is the ownership structure. In Poland, where over 80 per cent of forest land is held by one agency (state forest) it is easier to adopt and apply the idea of multifunctional forest management. The strategy needs to reflect the character of dispersed population and the traditional use of forests as 'natural gardens' of berries and mushrooms. Therefore almost all the forest can be used for recreation with few problems of accessibility.

Forests may not be equally suitable for recreation by reason of other aspects such as nature protection requirements, fire risk, unsuitable site conditions or problems of accessibility or ownership restrictions, especially in places where there is no automatic 'Everyman's right' of access. This means that the forest inventory can be a valuable tool for determining exactly how much forest is technically, practically and legally available for recreation in a given country or region. This enables a national picture to be created which can be matched to patterns of population, transport routes and tourism demands.

The picture is different in those regions of Europe where there is a high population but low amounts of forest cover. It may also be the case that the forest is located away from where most people live. This means that the strategic planning is concerned with developing or establishing more areas of forest closer to where most people live, with recreation and perhaps some other environmental functions as the primary objectives. This approach has been and continues to be important in countries such as the UK, the Netherlands, Belgium (Flanders), Denmark and Iceland. Significant programmes of afforestation to provide such opportunities have been a feature of forest planning for some 20 years in these countries (see below).

The incorporation of the supply of facilities into strategic recreational planning requires the establishment of a geo-referenced database of different facilities so that gaps in supply can be filled and duplication or unnecessary competition avoided. National forestry organizations who provide and manage such facilities find themselves with a considerable investment to maintain and continuously improve. New features such as legislation to make forests more accessible to disabled people can have a big impact on the supply of facilities to key groups, requiring a programme of auditing of facilities to find out how many are accessible, where these are and how they relate to the demands from disabled visitor groups, for example. In Sweden the National Board of Forestry worked with disabled groups to develop guidelines on how to make forests more accessible (Lundell 2005). This raised awareness among forest owners and foresters as well as the disabled community who perhaps for the first time saw an increase in the supply of forest areas they could visit. A similar project has recently been undertaken in Scotland, seeking better to match demand for access to the supply of accessible forests in line with the requirements of disability discrimination legislation.

#### **Application of strategic planning: examples**

So far the discussion in this chapter has set the scene for strategic planning, demonstrated the

diversity of legal and other contexts around Europe and outlined some of the main factors that should be considered. The remaining part of the chapter will be devoted to presenting a series of examples that reflect some of the approaches being adopted in practice across Europe.

#### *The United Kingdom*

In the UK forestry has been devolved between the constituent countries and each has approached its forestry strategy in a different way. The next section demonstrates two aspects. The first is a general strategy for Scotland, with a specific element on access and recreation, the second relates to a specific programme for forestry expansion in England.

#### **SCOTTISH FORESTRY STRATEGY**

In 2006 the second Scottish Forestry Strategy was launched (Scottish Executive 2006). This is a broad strategy aimed at a number of target areas of economic, social and environmental benefits. Within this overall strategy there are a number of priorities of which access and recreation is one. The tone of the strategy, which was informed by wide public consultation, is summed up in the following section:

Well planned, well managed forests provide a wide range of benefits. This Strategy's overarching principles are sustainability, through sustainable development underpinned by sustainable forest management and social inclusion. Sustainable economic growth, to raise everyone's quality of life in Scotland, is the Scottish Executive's top priority. Forestry can contribute much to sustainable development through the internationally recognised standards of sustainable forest management set out in the UK Forestry Standard. Support for Scottish forestry will also help to combat social exclusion by promoting opportunities for people to benefit from woodlands and woodland management, helping to tackle the barriers to inclusion, helping children and young people get the best possible start in life, and helping to

strengthen communities and regenerate deprived areas.

These key principles will be achieved through a culture of 'forestry for and with people' that embraces the social, economic and environmental functions of forestry. It will include everyone, from people who own or work in woodlands, to people whose only contact with woodland might be a view from a coach or a train. We recognise that our wider environment is of vital importance in its own right, but it still requires conscious effort, by people, to look after it.

The specific section on access is as follows. It focuses on some key priorities (marked as P in the text):

#### Making access easier

- Improve the evidence base on ways in which forestry can best contribute to inclusive access across Scotland.
- P Target appropriate woodland creation and woodland access improvements in areas where health and community need is greatest and current provision is weak.
- P Contribute to the effective implementation of land reform and assist local authorities and forest managers in the implementation of responsible access (Scottish Outdoor Access

Code), including the development of local and Core Path Networks.

- Ensure woodland access is supported by planning guidance at all levels.
- Ensure the Disability Discrimination Act is fully recognised in forestry best practice.
- Encourage the active involvement of the forestry sector in the work of national and local Access Forums.
- Promote confidence in woodlands as a safe and welcoming environment, particularly in and around communities, for example through active woodland management, provision of recreation facilities and ranger presence.
- Maintain Public Rights of Way through woodlands and take them into account in forest design and management.

#### ENGLISH COMMUNITY FORESTS

In England there has been a programme of developing what are known as Community Forests since 1990 (England's Community Forests). These are ambitious schemes to increase forest cover in the vicinity of twelve large urban populations for recreation, landscape enhancement, nature conservation improvement and other socio-economic goals. The approach has involved the development of partnerships between government agencies, local authorities, the charitable, business and

7.9 These paths have been installed to improve access to privately owned woodland on the edge of a town in central Scotland. This is an example of one of the priorities under the Scottish Forestry Strategy. Photo: Simon Bell.



private sectors together with the communities living in the areas. A team of specialists was established for each area with a role to acquire land or access to land and, using government grants and subsidies, to increase the area of forest. In 2005, 15 years after the project was launched the programme had:

- planted over 10,000 ha of new woodland;
- brought more than 27,000 ha of existing woodland under management;
- created or improved 12,000 ha of other habitats;
- opened up 16,000 ha of woods and green space for recreation and leisure;
- restored or created more than 4,000 km of recreational routes

(England's Community Forests 2005)

The Forestry Commission England claim that over half of the English population now live within or in easy reach of one of these community forests. This national initiative has also been followed by a host of local versions, and similar approaches exist in Scotland and Wales, for example the Central Scotland Forest and the Welsh Valleys Forest.

#### *Norway: Markaplan: developing urban forest plans*

Since 2003 all 'urbanised' Norwegian municipalities have been encouraged (but not obliged) to develop urban forest plans ('Markaplan', DN 2003). Despite the Norwegian situation with a relatively low population and a lot of forested area in general, the degree of urbanisation of society has produced the same result in Norway as can be found elsewhere: higher societal pressure on forests around the urban areas. In these areas traditional forestry has – for decades – been balanced with the recreational needs of the public. Urban forest planning under this strategic approach is very much based on the recognition of the increased public recreational pressure and needs, but also a general concern that a 'soft interest' like recreation might be overrun by harder societal development needs in the areas' neighbouring cities, putting pressure on the forest to be converted into other



7.10 Children participating in a community education activity at Thames Chase Community Forest, one of the 12 Community Forests in England. Photo: Forestry Commission.

land uses, for example. Defining a geographical border around the urban forest to secure the recreational interests is therefore a critical part of urban forest planning.

Nordic forest recreation is based on traditional free access to the forest and other land. This is also reflected in modern recreation planning, usually involving the provision of quite moderate facilities. Commercial development is normally not an element in such plans – except arising from special rules concerning hunting and fishing, for example. The development of nature-based tourism will, however, usually lead to more development unless carefully controlled. In 2008 a national act for Oslo Urban Forest ('Oslomarka') is expected to be placed before Parliament, in order to designate Oslomarka as a conservation area for outdoor recreation reasons – a unique proposal in Norwegian conservation history, and one which illustrates the need for special attention to the recreational interests around Norway's largest cities. It is also expected that the new focus and interest in bio-energy production from forests (because of climate change) will intensify the need for better forestry planning. Bio-energy forestry is new reminder to recreational and biodiversity interests about the future challenges facing forestry management and about the



7.11 Standardised paths are often financed through grants for disabled persons as part of the Markaplan approach in urban fringe areas. Photo: Margrete Skår.

benefits of strategic planning to take all factors into account.

#### *France: Forest recreation in the Paris region*

With a total of 280,000 ha of forests, the Paris region (Île de France) has a forest cover of 23 per cent (Office National des Forêts). This is close to the average for France. However, most forest recreation activities are concentrated on the 90,000 ha of public forests. According to a survey carried out in 1999, the Île de France public forests receive about 100 million visits each year. In especially important forests such as Fontainebleau, with famous rocky landscapes, visitors come from across the region. Generally, however, forest recreation is a close-to-the-home activity. Focusing on the

state-owned forests managed by the Office National des Forêts (ONF), the policy for recreation highlights that despite the high pressure of visits, urban and peri-urban forests remain 'true' forests managed with a multifunctional purpose. This is important as the surveys suggest that most French people consider the forest to be an archetype of nature: places where management should be almost invisible and no urban elements should be present.

The recreation planning strategy for the Paris region is defined within national and regional guidelines. Every public forest, with its natural and socio-economic background, has its own planning document. Communities and local administrative bodies are major partners of the ONF for recreation management. In urban and peri-urban forests, special attention is given to both recreation management and preservation of sensitive areas. Another difficult question is the regeneration of old forest stands: this requires subtle management which combines landscape skills and forestry techniques. Below the larger-scale strategic plan there are plans for each forest unit. A zoning plan organises the visitors' flow: car parks and main facilities are located in a few selected areas at the periphery of the forest. They are the departure points of short looping trails. Most forest roads have been given back to non-motorized users. And the 'heart' of the forest is accessible to people who prefer a wilder nature. Thus, the overall strategy determines, on the basis of key information from surveys, what the visitors want and where they prefer to go, and the units of state land, which reflect the reality of where is truly accessible, are planned in more detail.

#### *German landscape planning*

In Germany, strategic nature-based recreation planning is integrated into landscape planning (Landschaftsplanung), which is the key instrument of planning for nature conservation, nature-based land use and landscape management provided by the Federal Nature Conservation Act (Bundesamt für Naturschutz). Thus, nature-based recreation planning is directly related to the preservation of natural resources, ecosystem services, wildlife and characteristic



7.12 Example of an attractive landscape in the Fontainebleau area which is highly popular with the residents of the Paris region. It offers ideal opportunities to explore nature but is also under immense pressure from large numbers of visitors. Photo: Anne Marie Granet.

landscape features. It is explicitly understood as an integral part of environment provision and designated as a task of the federal nature conservation and landscape management authorities.

As an integral part of landscape planning recreation planning follows the same hierarchical spatial and administrative order by which rather general programmatic or strategic goals are given for the entire federal state, then further substantiated and localised at the regional level and finally operationalised and located at the local level. Each level sets the contextual framework for the next subordinated one and goals and measures become clearer and more explicit and determined in space and content from one level to the other.

#### *Strategic recreation planning and urban forests in Poland*

The Polish regulation that provides rules of forest management is the basic instrument to define forest functions, which can include functions dedicated to recreation (State Forests 2007). There is also a special guideline related to the Forest Act (see legislation above) which concentrates on protected forests for different purposes, such as soil protection, water resources protection, research areas, damaged

and defensive forests and for the protection of urban forests. This last aspect focuses on forests located within urban administrative areas and within a radius of 10 km around towns with over 50,000 inhabitants, to protect them for outdoor recreation purposes. In Poland, where there is the largest amount of forest in Europe which belongs to the state, over 9 per cent (635,000 ha) is urban-protected forest covered by the regulations described here. Similar to the French system, each Polish forest unit has its own planning documents which cover recreation, including proposals for tourist infrastructure and zoning.

An interesting approach was applied in Warsaw – a new concept was developed with the idea of creating a green ring of forests around the city (Kicińska 2000). By the 1950s, within the Warsaw region and in the surroundings 15,000 ha of new woodlands were planted, to restore damaged areas. Today, forests in Warsaw extend to 7,250 ha, which is over 15 per cent of the city administrative area. They are located mostly at the edges of the city. One of these units, the Kabaty Forest to the south of Warsaw, represents a unique example in Poland of a long-term strategy for outdoor recreation. The unit that covers 925 ha had been bought from private hands in 1938 by the initiative of the then mayor of Warsaw, Stefan

Starzyński. This idea helped to save this area from its transformation from old forest into garden suburb and to keep it as a public forest for the outdoor recreation needs of all Warsaw inhabitants. In the 1980s Kabaty forest was also protected as a nature reserve. At that time it was a popular method to save many forest areas within cities important for recreation. This is because nature reserves are the strongest elements of the system of protected areas in Poland. Both instruments of protected forests and nature reserves helped to preserve valuable urban forests, mostly under stress of new development, even when their value is much lower than natural reserves away from the urban environment. However, these approaches have stimulated a new discussion about the efficiency of the protected areas system in Poland.

Similarly, in Poznań, the Wielkopolski National Park is a protected area some 15 km from the city (population 600,000) and a very valuable resource in an attractive hilly terrain with small lakes. This was protected using the same system as for Warsaw described above. Within the general protected area are smaller strictly protected zones. This demonstrates the application of different legal instruments as a means of strategic planning in the absence of any other special system.



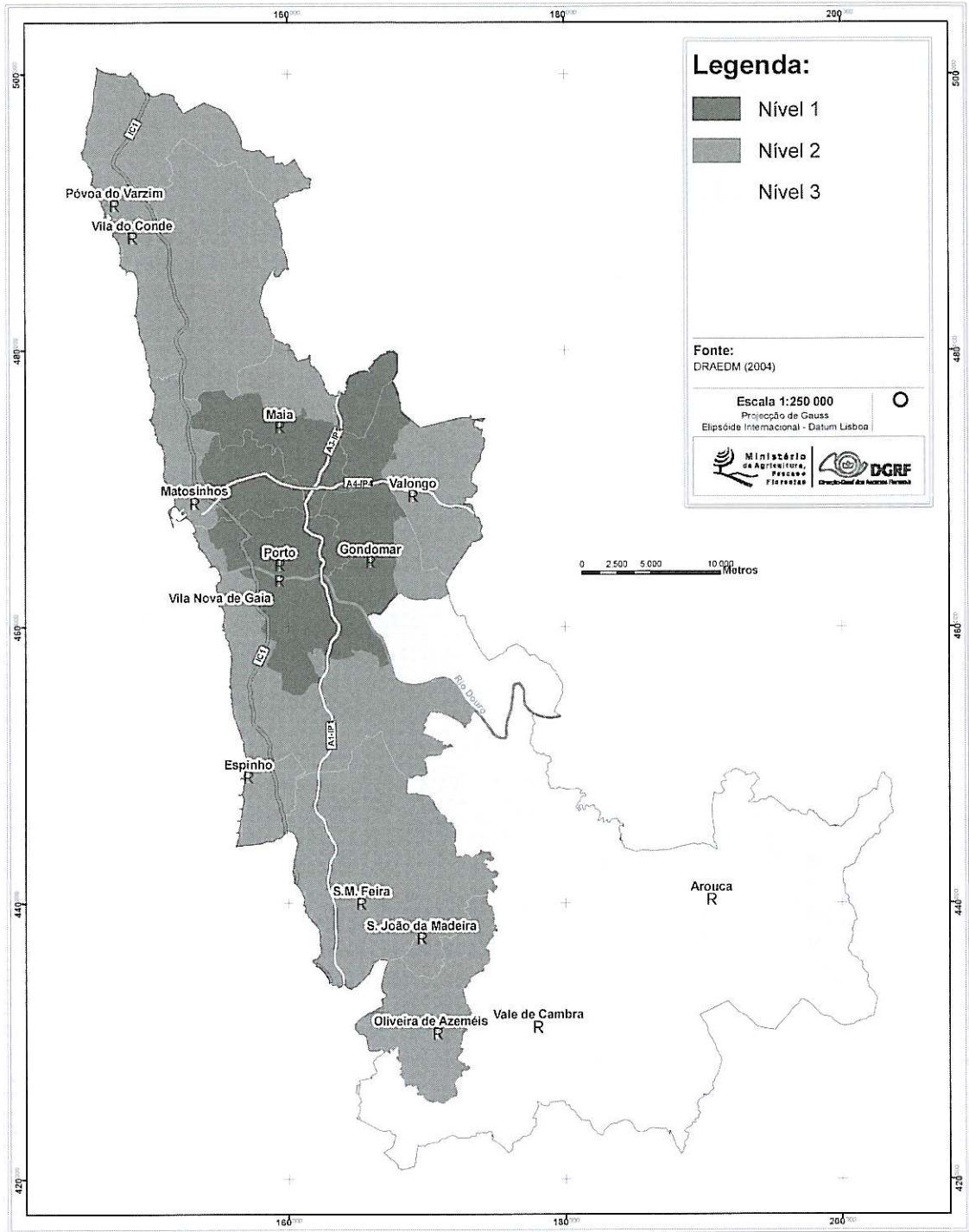
7.13 The Wielkopolski National Park is one of the most attractive areas around Poznań. The park, situated 15 km south of Poznań can easily be reached by car and public transport. It is a good example of the use of the nature protection legislation to protect a landscape, in this case mainly a forested area, within easy reach of the residents of a large city. Photo: Sjerp de Vries.

### *Recreation in the Portuguese strategic planning for forests*

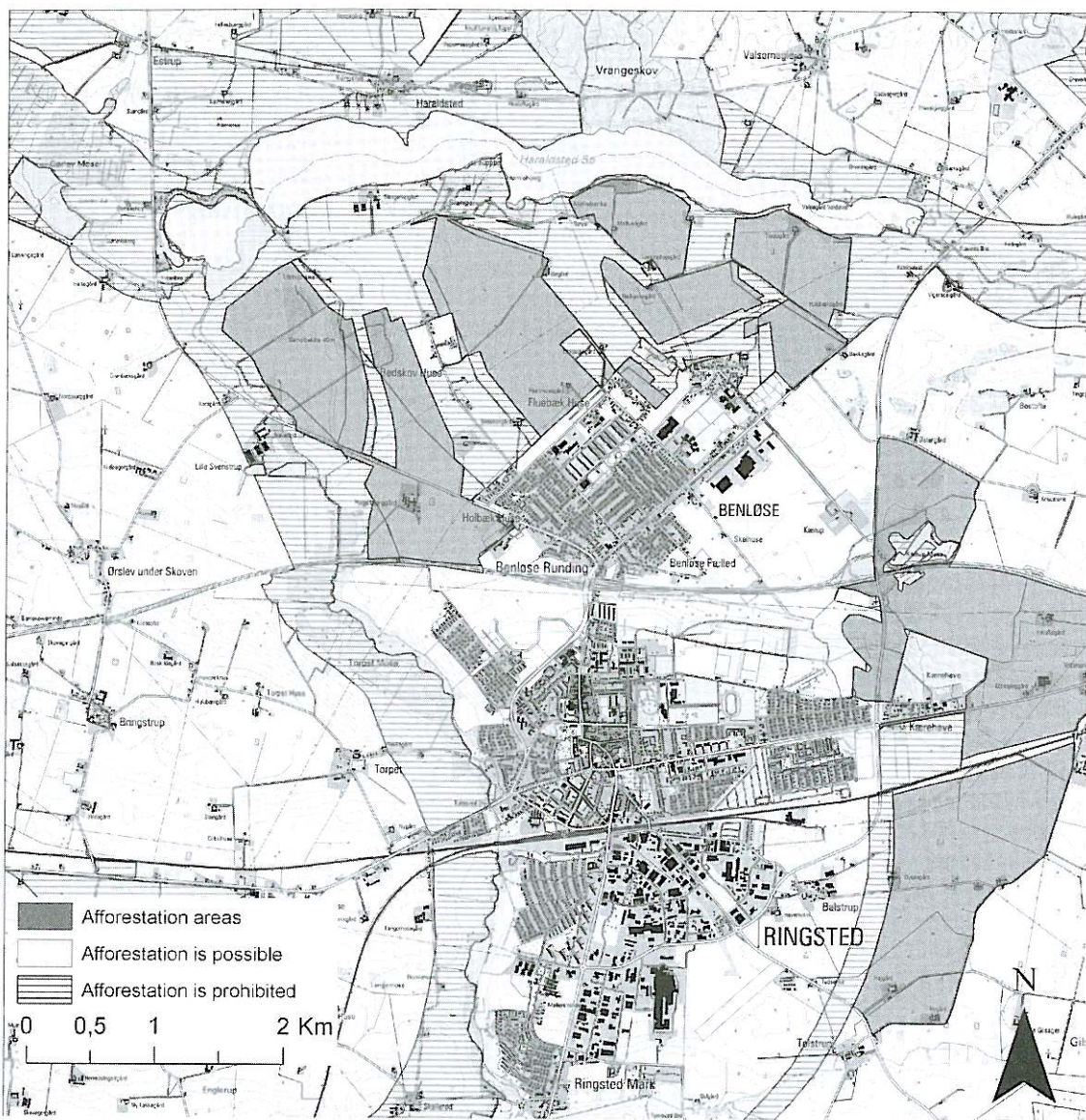
The Portuguese Government Resolution No. 114/2006 established the National Strategy for Forests, defining forest recreation as one of the recognised direct-use values of them. The territorial categories consider three main groups of forest function: wood production, multi-functional management, and coastal and protected areas. Recreation was defined as being particularly important in the second and third groups. It is considered as an important goal for stated-owned forests located on the coast. Most of these pine forests were established over many centuries and because they are state-owned, it is easier to develop their social and public use instead of a more productive and silvicultural utilisation.

This recreational function is related to the strong tourist pressure along the coast, and it is necessary to regulate conflicts between functions – recreational use and protection against wind and sea erosion. In order to promote this goal, recreational use, as well as protection, are to be introduced into the Regional Plans of Forest Management. Based on this National Strategy for Forests, twenty Regional Plans of Forest Management were assembled and published in 2007–2008, covering the whole of Portugal. In these plans the recreational function is associated with the landscape aesthetic function and is defined as the contribution to the physical, psychological, spiritual and social well-being of citizens. The twenty Regional Plans consider 165 homogeneous sectors with different priorities. Recreation is the first priority in thirteen of these sectors, distributed over ten Regional Plans. They are mainly related to the urban demand from metropolitan areas of Porto, Lisbon and Setubal, the leisure opportunities created by the new Alqueva dam, and also the Douro and Ocreza Rivers, the winter and snow tourism in Estrela Mountain, and the emergent nature tourism in Lousã, Caramulo and Malcata mountains. Recreation is the second priority in twenty-seven sectors and the third priority in forty-seven of them, being present as priority in a half of the total number of the 165 sectors. As second and third priority, recreation is

**PROF ÁREA METROPOLITANA DO PORTO E ENTRE DOURO E VOUGA**  
**Recreio, Enquadramento e estética da paisagem**



7.14 Map of the Porto region in Portugal showing a series of strategic zones where recreation loads are expected to be high, medium or low and where planning must be concentrated. Source: José Castro.



7.15 A section of an afforestation strategy map for the town of Ringsted in Denmark, part of the approach to locate new woodland closer to where people live. Source: Skov og Naturstyrelsen.

restricted on the estuarine and shore sides and sand dunes, and also in the most important Protected Areas for Nature Conservation.

#### *Denmark: the strategy for new forests*

During the 1980s, extensive abandonment of farmland was expected in Denmark as a consequence of the massive surplus of agricultural production in the EEC. Wood produc-

tion was seen as a potential use of marginal farmland and in 1989 the parliament agreed upon a doubling of the Danish forest area to 20–25 per cent within a tree generation of 80–100 years. The Danish national forest programme from 2002 still pursues this strategic aim, but the arguments have shifted towards more emphasis on recreational and environmental values, for example biodiversity, ground water protection or carbon sequestration.

The strategy for new forests has been accompanied by both spatial planning and financial means (Skov- og Naturstyrelsen). Three types of areas were designated to guide the location: the first category is where afforestation is preferred. In the next category, new forests are also possible while afforestation is prohibited in the third category. The first category was designated where the recreational potential is high, where drinking water interests are present or where new forests can substantially improve nature qualities or sustain existing nature qualities. Visual qualities (undisturbed vistas) or presence of cultural elements were, on the other hand, important causes for preventing afforestation.

The Danish Forest and Nature Agency has planted forests throughout the period since 1989. These projects have primarily been located in the first category (preferred areas), often near urban areas to provide recreational opportunities. However, new types of partnership between state and municipalities have emerged recently, and here forests are often planted to both protect drinking water sources and increase the recreational opportunities for the inhabitants.

Private afforestation is encouraged by grants. From the late 1990s, increased grants made it attractive to convert farmland to forest and since then, the main proportion of the new forests has been planted through this scheme. The applications for grants are prioritised according to spatial designations as well as characteristics of the projects measured by fixed criteria on, for example, recreation facilities, distance to urban areas, composition of tree species and management. The result of both public and private afforestation is approximately 2,500 ha of new forest each year (1997–2003) which equals approximately half of what is needed if the Danish forest cover should be doubled within a tree generation.

#### *Cyprus: the tourism strategy and its relationship to nature and rural tourism*

A strategy was developed in Cyprus for sustainable tourism covering the period 2003–2010. Within this plan, which looks at all aspects of



7.16 This trail and information in the forest in Cyprus is linked to the tourism strategy, providing activities as part of the thematic approach in the Cyprus Tourism Strategy. Photo: Maro Kazepi.

tourism throughout the island, nature and rural tourism are identified as priority special interest products or services which capitalise on the cultural and environmental diversity of the island and which also contribute towards the revitalisation of rural areas which have been suffering from depopulation and the abandonment of villages (Metaxas 2005). The Cyprus Tourism Organisation has therefore invested in projects and initiatives in order to develop an attractive and integrated rural tourism experience. There are four specific elements which have a connection with rural areas and forests. First, there is the development of traditional rural tourism accommodation establishments, taverns and other ancillary rural initiatives. There are more than 100 traditional houses in forty villages, a large number of which are located in mountainous-forested areas and provide opportunities for activities in forest recreation areas and cater for visitors with nature tourism special interests. Second, there is a network of seventy-two nature trails and the creation of the Cyprus section of the European Long Distance Path E4, (with a total length of 539 km), that stretches from the south-east to the west coast of Cyprus, traversing through the forests of the Troodos mountain range and rural areas of enhanced natural beauty and high

ecological, historic, archaeological, cultural and scientific value. Third, though not so directly related to the forest, are the networks of Wine Routes (complete with signage, design of a wine guidebook and interactive electronic maps) or Religious Routes (in rural areas and with guide). Fourth, the network of cycling routes in the Troodos forest area (complete with road surface marking, signage, area maps and guide), the Troodos Environmental Information Centre, picnic and camping sites and other recreational facilities in rural and forested areas and the development of special interest activities such as birdwatching, skiing etc. all rely on the forest and forest service for sites, locations and environments. This shows that the land resource managed by the forest service can serve an important function in the overall development of the rural economy without needing to supply traditional timber-based industries.

#### *Estonia: strategic forestry planning*

The Estonian Forest Act (December 1998) includes as one of its functions the creation of opportunities for people for rest, health improvement and sports activities (recreation). This is in the context of forests being accessible through 'Everyman's right'. Restrictions on the

right to use the forest can apply in order to prevent a natural disaster in the case of an especially high fire risk. The executive body of a local government has the right to prohibit the use of forest for timber harvest, use of by-products, hunting, research and education and also recreation. However, the manager of a state forest may transfer the right to use the state forest for recreation, use of by-products, hunting, research, education and national defence without charge or for a charge. The manager of a state forest is required to perform everything necessary for the widest possible use of state forest for the purposes of nature conservation, environmental and sanitary protection, for obtaining timber and for recreation. As a result the Riigimetsa Majandamise Keskus (RMK) or State Forestry Service has developed a widespread strategy for more developed recreation throughout Estonia. A number of information centres focus attention in different regions and there is a network of facilities aimed at providing more than just simple access to the forest. These focus on the more interesting and attractive areas throughout Estonia and are managed by dedicated staff in each region. Surveys are undertaken from time to time to find out about how people use the forests and these enable the RMK to modify its recreation offer over time.



7.17 In Estonia the forest service – the RMK – has a strategic network of recreation sites for visitors located in specially attractive landscapes around the country, often in association with lakes and other water bodies. Photo: Simon Bell.

#### **Conclusion**

In this chapter the focus has been on strategic planning for forests for recreation and nature tourism. Links have been made to the chapters in Part I and II which examined the values and benefits of forest recreation and nature-based tourism, the assessment of demand for recreation and the supply of forests and facilities. We have shown that there are different approaches which suit different regions of Europe because of the variations in forest area, legislation, planning systems, the degree of urbanisation, the cultural associations with forests and key management issues. It was evident from the review of changes taking place in society that forest recreation and nature tourism providers cannot ignore these. Trends in leisure and recreation are in constant flux but

there appear to be some key ones that are likely to affect outdoor recreation in general, including forest recreation, over the next 20 or so years. These may have far-reaching effects. Thus it is necessary for providers of forest recreation and nature tourism to make careful and continuous assessments of the changing patterns of demand and to keep the supply situation – of accessible forest land and of facilities – under constant review, so that investment in creation and maintenance of recreational infrastructure is safeguarded and so that people are able to participate in a range of activities regardless of where they live, their income level or their disability.

Strategic planning is needed more in some places – notably those with small areas of accessible forest and large urban populations – than others – notably those countries with large forest areas, low populations and 'Everyman's right' of access. It is also the case that the existence of strategies is by no means universal and in fact some of the countries where strategies might be considered least necessary are well provided – such as Finland – while those where it would be expected to be taken seriously do not have any – such as Italy or Greece. However, it appears that those countries which have set in place effective monitoring of demand and supply are able to command more resources for recreation development because they are better able to demonstrate the need and the value to society of forest recreation and nature tourism.

This strategic level of planning provides the important framework which is valuable for the next level of planning, that of the forest management unit, where the strategic directions are implemented on the ground. The next chapter will develop this theme, demonstrating how to apply the strategic planning outcomes in practice and in different situations.

## References

- Bell, S., Blom, D., Rautamäki, M., Castel-Branco, M., Simson, A. and Asgar Olson, I. (2005) Design of urban forests in Konijnendijk, CC. In: K. Nilsson, T.B. Randrupp and J. Schipperer (eds) *Urban Forests and trees: A Reference Book*. Springer, Berlin.
- Benson, J.F. and Willis, K. G. (1993) Implications of recreation demand for forest expansion in Great Britain. *Regional Studies*, 27(1): 29–39.
- Bundesamt für Naturschutz: Available at: [www.bfn.de/0312\\_landsch\\_planung.html](http://www.bfn.de/0312_landsch_planung.html) (accessed 5 May 2008).
- DEFRA (2007) Strategy for England's Trees, Woods and Forests. Available at: [www.defra.gov.uk/wildlife-countryside/rddteam/pdf/0706\\_forestry-strategy.pdf](http://www.defra.gov.uk/wildlife-countryside/rddteam/pdf/0706_forestry-strategy.pdf) (accessed 5 May 2008).
- DN (Directorate for nature management) (2003) Marka. Planlegging av by- og tettstedsnære naturområder. (Marka. Planning in urban forests). Handbook 24. Trondheim, Norway.
- England's Community Forests (2005). Available at: [www.communityforest.org.uk/aboutenglandsforests.htm](http://www.communityforest.org.uk/aboutenglandsforests.htm).
- European Commission (2001) Strategic impact assessment directive. Available at: <http://ec.europa.eu/environment/eia/sea-legalcontext.htm>
- Eurostat. Available at: <http://epp.eurostat.ec.europa.eu/> (accessed 1 May 2008).
- FAO: FAOLEX metadatabase of forestry legislation. Available at: [http://faolex.fao.org/cgi-bin/faolex.exe?rec\\_id=033654&database=FAOLEX&search\\_type=link&table=result&lang=eng&format\\_name=@ERALL](http://faolex.fao.org/cgi-bin/faolex.exe?rec_id=033654&database=FAOLEX&search_type=link&table=result&lang=eng&format_name=@ERALL).
- Henley Centre (2005) Paper 2: Demand for outdoor recreation. A report for Natural England's outdoor recreation strategy, London (Henley Centre/Headlight Vision). Available at: [http://www.countryside.gov.uk/LAR/Recreation/strategy\\_research.asp](http://www.countryside.gov.uk/LAR/Recreation/strategy_research.asp) (accessed on 25 April 2008).
- Irish Forest Service (2008) Neighbourwoods Scheme. Forest Service, Department of Agriculture, Fisheries & Food.
- Kicińska, E. (2000) Zieleni Warszawy w opracowaniach pracowni zieleni BOS, BUW, PUW, BPRW 1945–1991 (Warsaw Greenery in the elaboration of regional landscape planning studies 1945–1991). Warsaw, Poland.
- Kissling-Näf, I. and Bisang, K. (2001) Rethinking recent changes of forest regimes in Europe through property-rights theory and policy analysis. *Forest Policy and Economics*, 3(3–4): 99–111.
- Köchli, D.A. and Brang, P. (2005) Simulating effects of forest management on selected public forest goods and services: A case study. *Forest Ecology and Management* 209(1–2): 57–68.
- Living Forests (1998) The Final Standard Documents from Living Forests. Oslo: Living Forests Report 9a–d.
- Lundell, Y. (2005) Access to the forests for disabled people. National Board of Forestry, Jonkoping, Sweden.

- Mather, A.S. (2001) Forests of consumption: post-productivism, postmaterialism, and the post-industrial forest. *Environment and Planning C: Government and Policy*, 19(2): 249–268.
- Metaxas, A. (2005) Strategic plan for sustainable tourism in Cyprus. Cyprus Tourism Association, Nicosia.
- Metsähallitus Hiking areas. Available at: [www.metsa.fi/page.asp?Section=1401](http://www.metsa.fi/page.asp?Section=1401) (accessed 5 May 2008).
- Office National des Forêts: Île de France region. Available at: [www.onf.fr/reg/ile-de-france/Accueil.htm](http://www.onf.fr/reg/ile-de-france/Accueil.htm) (accessed 5 May 2008).
- RMK: Estonian forests. Available at: [www.rmk.ee/pages.php3/0203](http://www.rmk.ee/pages.php3/0203) (accessed 5 May 2008).
- Schmithüsen, F. (1997a) Forest Legislation Developments in European Countries. Voluntary papers presented at the *XI World Forestry Congress*. ETH. Zurich, ETH. 97/5: 17–22.
- Schmithüsen, F. (1997b) CO-Financing Arrangements for Multifunctional Management of Communal Forests. Voluntary papers presented at the *XI World Forestry Congress*. ETH. Zurich, ETH. 97/5: 23–27.
- Scottish Executive (2006) Scottish forestry strategy. Forestry Commission Scotland, Edinburgh. Available at: [www.forestry.gov.uk/pdf/SFS2006fcfc101.pdf/\\$FILE/SFS2006fcfc101.pdf](http://www.forestry.gov.uk/pdf/SFS2006fcfc101.pdf/$FILE/SFS2006fcfc101.pdf) (accessed 23 April 2008).
- Skogstyrelsen (1994) Swedish Forestry Act. Available at: [www.svo.se/episerver4/templates/SNormalPage.aspx?id=12677](http://www.svo.se/episerver4/templates/SNormalPage.aspx?id=12677) (accessed 7 May 2008).
- Skov- og Naturstyrelsen. Available at: [www.skovognatur.dk](http://www.skovognatur.dk) (accessed 5 May 2008).
- State Forests (2007) Forests in Poland 2007: Summary of the Report on the State Forests in Poland. The State Forests National Forest Holding, Warsaw.
- Voitleithne, J. (2002) The National Forest Programme in the light of Austria's law and political culture. *Forest Policy and Economics*, 4(4): 313–322.

Looking at all aspects of forest recreation and nature tourism, this book has a particular focus on Europe. It takes a regional approach, considering different aspects of recreation and tourism around many parts of Europe, presenting case studies from all over the region.

Describing the current situation to start with, the book is then divided into three parts, drawing on the best research and practice:

- the values and benefits of forest recreation and tourism, its role in the rural economy and mechanisms for its support and development
- the issues of recreation demand and supply and how to measure and monitor them
- planning and design for recreation and site design – from considering recreation at a strategic level and area-based planning through to implementation of projects on the ground.

Useful for a wide audience of forest planners and managers, recreation and tourism specialists and landscape planners and designers, relevant across Europe and beyond, this book is written by the top European specialists in the subject.

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