



# Planning for recreation along the opportunity spectrum: The case of Oslo, Norway



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## ABSTRACT

Land management policies, which emphasize timber production and biodiversity conservation may neglect other important services that these landscapes provide, such as the recreational opportunities that are particularly important in urban forests and woodlands. The quality of recreational opportunities in forested lands is largely dictated by the degree of human influence on the landscape, including forestry, recreational facilities, infrastructure and other man-made constructions. We present a four-part conceptual model based on the recreation opportunity spectrum framework, and tested it by using survey data and automatic counters in urban forests of Oslomarka in Norway. We find empirical support for the four-part planning concept. The pragmatic model may inspire forest landowners, land managers and planners to envision potential contributions to recreational opportunities by identifying four broad categories of suitability for recreational activities labelled: general consideration-, special consideration-, service- and wilderness areas. The conceptual framework can be used as a tool to plan and manage for recreational opportunities at different spatial scales.

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## Introduction

In Norway, forest management has been primarily concerned with the efficient harvesting of timber. Over the past few decades, there has been a shift to a more holistic management that recognizes the value of non-timber forest amenities, such as ecological and social values. This paradigm shift incorporates outdoor recreation in the certification frameworks of Norwegian forest management since the “Living Forest” program in 1998. Both, the Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification Schemes (PEFC), acknowledge recreation, but employ indicators that are vaguely defined or primarily procedural in a Norwegian context. Neither FSC or PEFC address opportunities for engaging in activities in a preferred setting or satisfaction with the recreation experience. Among several outdoor recreation management frameworks that identify physical, social, and managerial settings for outdoor recreation, the recreation opportunity spectrum (ROS) is one of the most commonly used frameworks (Cerveny et al., 2011). Recreation quality in this setting can be understood as the degree to which environmental opportunities meet people's preferences. This diversity

in recreational opportunities is important to secure high quality visitor experiences, also for visitors within the same user group (e.g. bikers) as they may have different environmental preferences (Gundersen and Frivold, 2008). There is a need for spatial planning tools that incorporate the diversity of recreational opportunities in forest planning and management. Due to intensity of use and diversity of users, urban forests are “hot spots” for development and adaptations in forest management, which may enhance benefits like quality of life, aesthetics and recreational opportunities (Konijnendijk et al., 2006). For example, Oslomarka, the municipal urban forest of Oslo, has been an important site for recreational research and management since the 1960s and outdoor recreation has been the primary goal of forest management since the 1980s (Mjaaland and Andresen, 1986; Gundersen et al., 2006).

Our paper aims to describe the development of a spatial application of the ROS in Oslomarka, including main zones along the recreation opportunity spectrum; Service areas, areas of special considerations and wilderness areas. We first conceptualized and drew up a spatial zoning framework in the study area. Then we tested this empirically for those visiting the areas by using automatic counters (intensity of use) and self-registration checkpoints (visitor characteristics). The approach presented here permits the evaluation of a spatial planning method that may be suitable for other urban and recreational forests, especially in regions with large tracts of forests found throughout the Nordic countries.

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ROS has mainly been used to classify large scale landscapes in a rural-wilderness setting. However, in this paper we suggest an adaptation of the concept to an urban forest context including small-scale landscapes with diverse, high intensity use.

To set the context for the theoretical and empirical sections we first describe the historical adaptations and the development of recreational values in the forest management of Oslomarka. In the following section, we give a short presentation of the ROS concept as well as a simplified, standardized version of the Wilderness Purism Scale. From this review we derive a simple four-part conceptual model, which we then tested empirically.

## Recreational forests and the spectrum of users

### *The recreational forests of Oslo*

As early as the 1960s the capital city Oslo, Norway, has together with Toronto, Canada, been instrumental in developing the concept of urban forestry (Bondø-Andersen et al., 1974; Jorgensen, 1986). The historical development of Oslomarka (literally; 'the fields outside Oslo') has gone through stages of how recreation has been valued and incorporated in the forestry sector (Haakenstad, 1972; Lind et al., 1974; Gundersen et al., 2011), from minor adaptations within the clear-cutting regime in the 1950s–1970s, to a multiple value and service oriented forestry practice during the last decade. In effect, Oslomarka has legally been managed like an urban forest for recreational purposes since the change of the forestry act in 1976. A separate paragraph, Section 17B, outlined detailed restrictions of forestry in an area encompassing altogether 1700 km<sup>2</sup> of forest dominated landscape. The restrictions in the 1976 forestry act include general considerations like the size of clear-cuts, thinning, road constructions, use of chemicals and fertilizers, scarification, drainage, use of exotic species, cutting near dwellings and whole tree harvesting (Gundersen et al., 2005).

Oslomarka is surrounded by urban centres comprising approximately 25% of the Norwegian population. However, a mere 1600 persons live within the boundaries of Oslomarka. On a sunny winter week-end in 1960s, more than 60% of the population of Oslo was estimated to recreate in Oslomarka (Haakenstad, 1972). The impetus for an early focus on urban forestry came from intensive conflicts between forestry and recreationists during the 1960s and 1970s (Hellström and Reunala, 1995). These conflicts evolved after the forestry sector began to transform large tracts of old multi-aged forests towards uniform clear-cuts and even-aged stands (Hellström, 2001), including massive construction of logging roads. This development spurred the need for knowledge about users, and numerous outdoor recreation research studies were carried out in the area including user surveys and studies of forest preferences (for review see Gundersen and Frivold, 2008). Preference studies in particular have had an important influence on the forestry and legislation such as amendments to the forestry act in 1976, several official general considerations, as well as the new Marka act in 2009 (Gundersen et al., 2011). In parallel, development of general considerations and special facilities for recreation have been constructed by different actors for a long time in most areas of Oslomarka, including marked paths, information signs, and other facilities to improve the availability of quality recreational opportunities. Recent studies show that the visitor use in Oslomarka is strongly linked to existing infrastructure and facilities (Hagen, 2013).

In the 1980s and 1990s and up to present, a large part of Oslomarka has been protected as nature reserves and key biodiversity biotopes. Currently around 20% of the Oslomarka forest is protected for biodiversity purposes. In accordance with Markaloven (Law regarding undeveloped lands) Section 11 additional approximately

1% of the area (in total 1700 ha) is planned to be protected as recreational areas. The preparatory work for Markaloven of 2011 (White paper, 2009) forms the framework for which attributes protected areas should feature regarding the quality of a visitor's experience, accessibility and actual use. A framework and methodology for inventorying urban "wilderness areas" was developed in 2011 (Gundersen et al., 2011). Potential areas were assessed during 2011 (Løset et al., 2012) and the first wilderness zones were protected by law in 2013. In most cases nature reserves are established for the protection of biodiversity, or to protect both biodiversity and recreation values. In the Oslomarka case, the primary objective for protection is recreational use and nature experience. Protection of this kind of "wilderness areas" (read: small patches of natural forests without recreational facilities) in an urban proximity is quite unique in both a Nordic and European context, and raises the question of what kinds of users these areas attract. The recreational management of Oslomarka and protection of Section 11 areas have taken into consideration the diversity of visitors along the opportunity spectrum, including areas of service, special consideration and wilderness experience.

Interestingly, a development of recreational values in the forest management of Oslomarka since the 1960s, have initialized spatial planning to provide the user a diversity of opportunities (Gundersen et al., 2011). This has mainly been a pragmatic step-by-step planning process driven by nature and recreation NGOs as well as municipal and state management authorities for the purpose of meeting the demands for high quality forest experiences. Service areas along the city border have been developed and connected with a network of infrastructure further inside the forest landscape (marked paths, roads, signs, toilets, car-parkings etc.). The final step includes establishments of wilderness areas in an urban forest setting. This classification of different zones largely reflects the ROS concept with underlying theories and empirical knowledge as well as principles and definitions.

### *Recreation opportunity spectrum and wilderness experiences*

Reasons for visiting natural areas can be as diverse as the visitors themselves (Shafer, 1969; Clark and Stankey, 1979). The topic of outdoor recreation includes basic questions about human perception of the environment, the role of place and landscape for identity, and the evolution of a modern, or post-modern society. However, key traditions in planning for outdoor recreation are mostly based on empirical surveys of behaviour, attitudes, and expectations of forest visitors and stakeholders in a context of spatial conflict resolution and area management (e.g. Patterson et al., 1998).

The principle of common access rights to all uncultivated lands in Norway (Outdoor Recreation Act, 1957) is undisputable. Investigating the history of outdoor recreation research provides insight into how different traditions have been conceptualised based on values, attitudes and beliefs. A central construct in the Nordic recreation history is what Kaltenborn (1993) labelled *motivational recreation research* (MRR), mainly founded on North American research and management traditions. The MRR tradition is strongly influenced by psychology, but incorporates additional influences from economics and landscape planning. The *reasoned action model* (Ajzen and Fishbein, 1980) and its extended version, the *theory of planned behaviour* (Ajzen, 1991) is often used when describing how recreationists makes decisions (e.g. Ajzen and Driver, 1992). According to the latter model, a person's behaviour is influenced by his or her intention to behave in a particular way. Intention is determined by three factors: (1) the person's attitudes towards the behaviour; (2) the subjective norms that he or she believes his or her significant other holds concerning the behaviour; and (3) perceived behavioural control (the perception of whether the behaviour can be performed) (Fig. 1).

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