Beliefs about urban fringe forests among urban residents in Sweden

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ABSTRACT

The aim of this study was to examine predictors of beliefs about urban fringe forests among urban residents in Sweden ($n = 586$). Based on a cognitive hierarchical model, the study investigated how socio-demographic variables, as well as different values and beliefs, were related to the more specific beliefs urban residents have about urban fringe forests. Results demonstrated that the urban fringe forest was perceived to be essential for personal wellbeing, but preservation and accessibility to the forest were also important. Certain differences between socio-demographic groups were identified; for example, the importance of urban fringe forests for personal wellbeing was emphasized more by women, older people and those with a university degree. However, the importance of socio-demographic variables was modest compared with the influence of people's values and beliefs. More specifically, results showed that urban residents' basic values and ecological worldview, as well as forest values and beliefs (i.e., concerning forest qualities and forest requirements), were important in explaining their beliefs about urban fringe forests. Overall, the study revealed that urban residents are characterized by a heterogeneous set of beliefs concerning urban fringe forests. Recognizing these multiple beliefs in urban fringe forest development processes may help mitigate future conflicts between forest visitors, urban planners, forest owners and forest managers, thus enhancing our way toward good urban living environments.

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Introduction

Forests are important in several respects and represent different amenities to different people. Urbanization has resulted in people becoming more physically distant from forest regions, and has thus changed their personal experiences of forests. Although still important, the economic value of traditional forestry has decreased as the forestry sector's importance for employment has declined (Lundmark, 2006), resulting in less personal economic dependency on the forestry sector. Instead, attention to social and ecological values of forests, for example recreation, restoration, scenic beauty, biodiversity, and nature and wildlife experiences, has increased (see e.g., Evans, 2001; Lindhagen and Hörnsten, 2000; Rydberg, 2001; Tahvanainen et al., 2001; Konijnendijk et al., 2005; Lindkvist et al., 2009; Hladnik and Pirnat, 2011).

In most European countries, the concept of social forest values is associated primarily with forests adjacent to urban areas (see Konijnendijk, 2003). However, definitions regarding the content and physical structure of these forests differ throughout Europe. Whereas some countries include green spaces, parks, and street trees (e.g., the Netherlands and the United Kingdom), others exclude artificial green areas (e.g., Finland). In Sweden, there is no official or uniform definition of the urban forest (Lindkvist et al., 2009), although there has been an interest for forests located outside the urban fringe, not including the artificial and planned green spaces commonly found in urban areas (see e.g., Rydberg and Falck, 2000). Since the social benefits of urban fringe forests may differ from those experienced in green spaces inside urban areas, this study focused on the social values of urban fringe forests specifically. Although park-like forests within urban areas generally receive a majority of people's forest visits in Sweden, urban fringe forests are the most frequently visited among forests outside urban areas. According to Andersson et al. (2005), just below 40% of the general public in Sweden visited urban fringe forests at least every week, while only around 20% visited forests more than 5 km from urban areas with the same regularity. Accessibility to and within the forests as well as their inherent qualities and historical use are important general drivers behind the high visitor frequencies (Swedish Forest Agency, 2005, 2010).

In the process of designing, planning, and managing urban fringe forests it is important to consider urban people's opinions regarding these forests. A failure to address people's requirements may generate conflicts between users, planners, and managers, as has happened historically in relation to urban forests (see e.g., Konijnendijk, 2000; Lindkvist et al., 2009). Since urban forests may hold different meanings for different people, it is furthermore

important to understand the underlying basis of urban fringe forest beliefs. Based on a survey of Swedish urban residents, this study investigated how socio-demographic variables, as well as different values and beliefs, were related to their more specific beliefs about urban fringe forests.

Theoretical frameworks

Characteristics of urban fringe forests

From a policy and management perspective, it is important to consider how people evaluate different design characteristics of urban fringe forests. Bell et al. (2005) describe four conceptual themes that deserve attention in urban forest design: the social dimension (e.g., urban forests as a setting for social activities), the experiential dimension (e.g., esthetics), the functional dimension (e.g., accessibility to people), and the ecological dimension (e.g., ecological concerns). These dimensions are considered to be inter-related and may be more or less important in different contexts. In this study, three topics reflecting various aspects of these dimensions were explored in more detail. First, the extent to which people believe that ecological concerns and preservation are important in urban fringe forests, labeled *preservation*, was examined. Notably, urban forests are perceived to be important for preserving the bio-diversity of plants and animals (Tyrväinen et al., 2005), and from a historical point of view this issue is increasingly highlighted in relation to urban forests (Forrest and Konijnendijk, 2005). The second topic concerns whether people think urban fringe forests should be managed so that they are easy to move around in, labeled *easy access*. This is part of the functional dimension suggested by Bell et al. (2005), and there is ample evidence of the weight given to accessibility by users of urban forests (e.g., Hunter, 2003; Tyrväinen et al., 2005). Finally, people's personal relationship with urban fringe forests, labeled *personal wellbeing*, was examined. This personal connection to urban fringe forest may, for instance, follow from actively engaging in recreation activities or just finding the forest esthetically pleasing, as part of the social and experiential dimensions outlined by Bell et al. (2005). The emotional quality of people's personal connection to urban forests has further been noted by Dwyer et al. (1992), for example. By examining urban residents' beliefs in relation to these topics, insights important for the management of urban fringe forests will be exposed.

A cognitive hierarchical model

To understand why people hold various beliefs about urban fringe forests, it is important to identify predictors of these beliefs (see e.g., Eagly and Chaiken, 1993). In this study, we draw on a cognitive hierarchical model stipulating that people's general value and belief structure is related to more specific beliefs, attitudes, and behaviors (see e.g., Eagly and Kulesa, 1997). The model has previously been elaborated on and tested within the environmental domain (e.g., Stern et al., 1995) and in relation to forest issues specifically (McFarlane and Boxall, 2000; Nordlund and Westin, 2011). Given this theoretical basis, more general values and beliefs are hypothesized to influence specific beliefs in a hierarchical structure. In this study, the model is extended to the domain of urban fringe forest specifically, so that basic values, an ecological worldview, and forest values and beliefs are seen as predictors of urban fringe forest beliefs (see Fig. 1). In line with Eagly and Kulesa (1997), beliefs are defined as cognitions or thoughts about a certain object. Forest cognitions, such as forest values and beliefs, are in this model directly adjacent to urban fringe forest beliefs, although direct effects from more general cognitions are nevertheless possible.
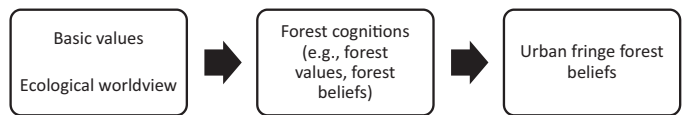

Fig. 1. Conceptual model of how values and beliefs influence urban fringe forest beliefs.

At the most general level in this cognitive hierarchical model, basic values (e.g., Schwartz, 1992, 1994) and an ecological world-view often assessed by the New Ecological Paradigm (NEP) scale (Dunlap et al., 2000) are believed to be important for the more specific urban fringe forest beliefs. For example, Nordlund and Westin (2011) found that collective values – that is self-transcendence values oriented toward the welfare of others (rather than emphasizing self-interest) and a strong ecological worldview – resulted in a more positive attitude toward environmentally and human-centered forest management. In addition, conservative values, such as those emphasizing stability and traditions (rather than values relating to an openness to change), and a weaker ecological worldview led to a more positive attitude toward economically centered forest management. In relation to urban green spaces, a stronger ecological worldview has been found to be associated with believing green spaces to be personally useful and actively contributing to issues related to urban green spaces (Balram and Dragicevic, 2005). Since basic values and an ecological worldview have been found to guide more specific forest beliefs and attitudes, their importance for urban fringe forest beliefs needs to be examined.

In addition to basic values and an ecological worldview, it is relevant to consider people's forest cognitions, such as forest values and beliefs, since these are likely to mediate between the more general cognitions and urban fringe forest beliefs specifically. Forest values or value orientations concern the reasons for why humans value forests (Manning et al., 1999; McFarlane and Boxall, 2003). A distinction is often made between biocentric and ecocentric values stressing the intrinsic values of the forest and anthropocentric values emphasizing how the forest can satisfy humans' interests (e.g., McFarlane & Boxall, 2000, 2003; Vaske et al., 2001). Moreover, a variety of specific forest values, such as ecological, economic, esthetic, and recreation values have been explored (e.g., Manning et al., 1999; Kant and Lee, 2004). In previous studies, ecological, recreational, and production values, have been found to influence for example forest management attitudes (Nordlund and Westin, 2011; see also Manning et al., 1999). Furthermore, since urban forests are strongly linked to recreational benefits (e.g., Forrest and Konijnendijk, 2005), the qualities people experience when visiting forests may be important for how they perceive urban fringe forests. Providing opportunities for recreation activities or restorative experiences (independent of activity) are examples of qualities often highlighted in the forest literature (e.g., Kaplan and Kaplan, 1989; Roovers et al., 2002). Another issue important for urban fringe forests is what a forest should look like in order to attract visitors. In scene preference studies the importance of, for example, signs of human intervention (such as houses) (Real et al., 2000) and accessibility inside forests (Staats et al., 1997) has been explored. In relation to urban fringe forest beliefs, we thus hypothesize that the emphasis people place on different forest values, the extent to which people believe the forest can provide different qualities to them, and the requirements people have on forests should have an impact on their beliefs about urban fringe forests.

Although the focus of this theoretical framework is on internal values and beliefs, socio-demographic factors are believed to influence forest beliefs (cf. McFarlane and Boxall, 2000). In previous studies, rather consistent differences in the ecological worldview and forest values of men and women have been demonstrated, whereas results concerning age, education, and city size have been