

Residents' use of remnant natural vegetation in the residential area of Järvafältet, Stockholm

Clas Florgård*, Oskar Forsberg

Department of Urban and Rural Development, Swedish University of Agricultural Sciences, Unit of Landscape Architecture, P.O. Box 7012, SE-75007 Uppsala, Sweden

Abstract

In growing cities, there is a demand for development areas, which poses a threat to existing green areas. Therefore, it is of interest to know to what extent different types of green areas are used by residents. In the suburb of Järvafältet, situated 15 km outside Stockholm city centre, inhabitants' use of patches of remnants of original natural vegetation in green areas has been studied by momentary observations from fixed points over the periods 1978–1982 and 2002–2004. The number of people, sex, age, type of activity, and place of that activity were noted. Overall, there has been a significant increase in the amount of use of these types of recreation areas between the two periods. The use by organized groups, as well as by adult walkers, runners and cyclists, increased the most, while individual children's play decreased. Almost every other child observed was found to be partaking in organized school or day nursery group activities. Children belonging to organized groups were seen as frequently in areas at a distance of less than 100 m from the houses as between 200 and 400 m from the built-up area, while children not participating in group activities were seen much more frequently in the areas closest to buildings. These types of green areas were used more by children and young people than by adults. This implies the likelihood that the use of these areas for recreation is underestimated in outdoor recreation inquiries and interview studies, where children are not usually included. Residents' use of areas with remnant natural vegetation in cities shows that these areas have a recreational value as well as with other values. This makes them important to take into consideration in the planning and design process. Small areas close to residential areas need to be considered.

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Introduction

As cities expand, there is an increasing demand for areas that may be developed for housing, roads and other essentials. Existing green areas are often proposed as suitable for development. This poses a threat to inhabitants, since these areas are used for recreation and are appreciated because of their amenity value. It is,

therefore, of interest to ascertain to what extent different types of green areas are used by the residents. Several such studies have recently been performed. They have either been general studies of the use of the green infrastructure, independent of the type of green areas (see e.g., Grahn and Sorte, 1985; Lieberg, 1994; Berggren-Bärring and Grahn, 1995), or have focused on developed parks (see e.g., Titman, 1994; Holm, 2000a, c). However, there are also other types of green areas, which have recently received attention, but the use of them has not been studied. These include patches of

*Corresponding author. Tel.: +46 18 672619; fax: +46 18 673512.

E-mail address: clas.florgard@sol.slu.se (C. Florgård).

original natural vegetation, which have deliberately been preserved in cities or have just been left. They encompass vegetation types such as natural and semi-natural forests and woodlands, meadows, pastureland, heaths, mires and wetlands (Dyring, 1984; Florgård, 1981). Preservation of such vegetation provides biological (see e.g., Gilbert, 1989; Sukopp, 1990; Dwyer et al., 1992; Werquin et al., 2005), functional, economic (Tyrväinen, 1997) and social advantages. In this paper the social dimension is in focus. Areas with natural vegetation can provide beauty of a kind that can be difficult or even impossible to achieve through ordinary planting (Plant, 1996; Berglund, 1998; Howell and Benson, 2000). They can also provide exciting play areas for children, as a complement to designed playgrounds (Lindholm, 1995) and can offer pedagogic excursion destinations for day nurseries and schools (Titman, 1994). Recently it has also been found that natural vegetation has a special importance for the rehabilitation of people who are suffering from illness or stress (Grahn and Stigsdotter, 2003) and for public health in general (Hartig et al., 1991; Kaplan, 2004).

Remnants of natural vegetation in cities have been found to be threatened in many ways; often they are more severely threatened than designed and developed green areas. Decision-makers and planners with little knowledge concerning the benefits of natural vegetation do not often take them into consideration. For example, Nyhuus and Halvorsen Thorén (1996) found that several small green areas in Norwegian cities were developed by so-called infill 1965–1995 (referring to the period of urban development), and that remnants of natural vegetation (“natural areas”) were more threatened than areas with planted vegetation. The vegetation can also be damaged through wear and tear (Florgård, 2000; Lehvävirta and Rita, 2002). Therefore, decision-makers need knowledge of the values of areas with remnant natural vegetation, including its use. Planners, designers, urban foresters, and management staff need information to be able to estimate the intensity and location of wear and tear. It is also of interest to study whether changes in people’s behaviour, not least children’s increased indoor time with computers, have had an impact on the use of outdoor environments. For future planning and design it is of interest to create a basis for comparisons between people’s use of natural vegetation and developed vegetation.

The main aim of this paper is to discern the amount and type of use of urban remnant original natural vegetation and the change in use, if any, between the late 1970s and the early 2000s. The present survey is part of a larger research project concerning areas with remnant natural vegetation in cities. The main project started in 1972 with the aim of studying the impact on preserved remnant patches of natural vegetation

when a rural area was developed for residential purposes, and the resulting changes in vegetation. The study of impact included investigation of people’s use of areas of natural vegetation at different distances from their dwellings.

Study site

The study site includes a residential area called Järvafältet (59°N, 18°E, Sweden), situated about 15 km northwest of Stockholm city, as well as a neighbouring green area of about 5 km², and a nature conservation area of about 25 km² with its border about 1 km from the developed area. The developed area comprising the districts Kista, Husby and Akalla is densely built-up with a population of about 30,000. Before development the entire area was rural, with forests, meadows, pastures and arable land.

Development was mainly carried out between 1973 and 1978, and in some areas up until the year 1981. The main house type is 5–6 storey buildings (Fig. 1), but in some parts there are two-storey terraced houses and, in others, 14-storey buildings. When Järvafältet was developed, parts of the existing original natural vegetation were preserved as parts of the outdoor environment. The preserved forests are mostly coniferous, but some oak (*Quercus* sp.) and other deciduous forests also exist. The ground is slightly broken, with the presence of emerging rocks. The ground cover vegetation is of *Vaccinium* type in most forests, but grass-rich and herb-rich vegetation is also present in some plots. The meadows are, by Swedish standards, herb-rich with many flowering plants. Within the built-up areas, and at a distance of approximately 100 m from them, only small patches of natural vegetation are left. Less than approximately 10% of the open space consists of natural vegetation. The rest has been developed as parks, playgrounds and so forth, mainly accessible and used by the residents. The neighbouring green area consists of approximately 50% arable land and 50% forests and meadows, criss-crossed by small roads and paths. Most of the arable land has been converted to grass fields for play and recreation and to allotment gardens, and three farms have been converted into meeting places, cafés, a city farm, etc., including surrounding gardens, small playgrounds and recreation areas. The fourth farm concerned is still in use for farming purposes. Of the four farms, two are situated within the green area, while the other two are located at the edge between the border area and the green area. A jogging track has been introduced in the forests and on the grass fields of the green area. The nature conservation area consists of approximately 25% arable land and 75% forest, with a smaller number of roads and paths. It is well known as a recreation area.

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