

Session: Green spaces in cities

The history of allotment areas in 20th century Sweden and their role in maintaining ecosystem services in urban areas

*Stephan Barthel*¹, *John N Parker*² and *Thomas Elmqvist*¹

- 1) Department of Systems Ecology
Stockholm University
SE-106 91 STOCKHOLM Sweden
- 2) Department of Sociology
Arizona State University
Tempe, Arizona 85287-4802 U.S.A.

Abstract

During the 20th century the use of allotment areas in Sweden has gone through several periods of crises and revitalizations. We will review these periods of ups and downs and discuss the economic and social drivers of the allotment movement, with a focus on Stockholm. Today, there is an increasing interest in allotment areas and their role in maintaining ecosystem services in increasingly exploited and fragmented cityscapes. We will give specific examples from our own studies of allotment areas. We highlight that their management has a potential role in sustaining the resilience of the system as a whole.

Introduction

Given the accelerating rate of urbanization worldwide, nations need to increasingly view green space, such as gardens, in cities as national resources; not only for their ecological functions in the urban landscape, but also for their social functions in recognition of that urban green spaces are becoming increasingly important as nodes of interaction between humans and nature (Pickett et al. 2001). This paper focuses on green space and allotment areas in Stockholm County. Stockholm County has today the largest population concentration in Sweden with more than 1.8 million people and a total land and water area of 678 500 ha, representing about 2% of the total land area surface of Sweden. The structure of the green space in Stockholm County is characterized by 10 *green wedges* that extend from the rural parts of the County towards the central parts of Stockholm city.

The green space in Stockholm today makes up about 40% of the total area (<http://www.scb.se/mi0805>), of which 2.5 % are allotment areas (Björkman 2000).

Today there are around 150 allotment areas in Stockholm County, whereof 83 are within Stockholm City and 9 in the inner City (Nolin 2003; Moberg 2003). Stockholm provides a valuable case study by which to explore the role that allotment gardens may play in social-ecological systems at various phases in their development. In the first section of the paper we briefly describe the development of the allotment movement in Sweden. Attention is paid to the motives behind the movements, as well as the form of organization that each movement initially takes. Here an analysis is conducted of the social and ecological pressures that led to the formation of allotment gardens in

Stockholm as well as on the contribution of ecosystem services that are delivered from allotment areas. We conclude by discussing the role that allotment gardens have played in ameliorating social and ecological pressures within a dynamic ever changing social-ecological system.

The History of the Allotment Movement in Sweden

From its inception in Germany the allotment garden movement penetrated into the cities of northern European countries. Many of these areas were like Stockholm, faced with social problems such as mass migration from the country side, overcrowding, unhealthy living conditions, and a loss of the traditional culture and values that had been the product of rural living (cf. Lignell 1995; cf. Lundevall 1997; cf. Nilsson 2000). The urban garden movement spread from Holland to Denmark, and on to the Nordic countries (Crouch and Ward, 1988). As was the case in other parts of Europe, the organization of the allotment garden movement in Sweden was a response to a perceived potential or actual crisis within the social-ecological system and the work of a small group of activists. During 1850-1900s Stockholm grew rapidly (Nolin 2003), which led to meager living conditions for much of the workers and craftsmen. A probable response to this was a public demand for gardening and the Swedish allotment movement was initiated for the benefit of the working classes during this period (cf. Lindhagen 1916) and the first users of the allotment gardens were typically the more affluent portions of the working class (Nolin 2003).

A striking difference between Sweden and the rest of Europe was that the most important facilitators of the organizational process were women. Birgit Malmström and Carl-Mangus Wanbo noted this history in their address to the International Leisure Gardener's Congress entitled "Allotment gardens and leisure gardens in Stockholm" (1976). Of particular importance in sparking the gardening movement in Sweden was the work of Anna Lindhagen, who became the first chairperson of the Association of Allotment Gardens in Stockholm, founded in 1906 primarily through her work (Conan, 1999). Along with Lindhagen two other women were also responsible for the spread of the allotment movement in Sweden, Anna Åbergsson and Sigrid Hård. Through the 1920's there was an increase in the production of chalets on the gardening plots, though the law stipulated that they could only be resided in from April to September. Still, during this time there was a housing crisis that had the effect of forcing about 450 families in Stockholm to live in the garden chalets all year long. Much of the allotment movement transferred to what would become the summer and weekend homes of the Swedes of today. There is evidence that the allotment gardens in the boundaries of Stockholm were allowed on the basis of the beauty that they created in the urban landscape, rather than the practical value that they provided to the families that tended them. During the first 20 years the movement was dependent on voluntary work by small numbers of activists. In 1921 the city of Stockholm took over the movement, with the intention of cutting down the number of allotments with 80%. The civil societal response was the establishing of a nation wide network of allotment associations and governmental nodes, which resulted in the formation of The Swedish Allotment Union (*Svenska koloniträdgårdsförbundet*). Daily procedures were strictly regulated by the Swedish Allotment Union, and this led to the formation of local associations in Stockholm with

the aim of countering the Union's influence (Nolin, 2003). Nevertheless the local associations probably helped to bring stability and in 1926 the Swedish Allotment Union joined the international allotment movement (<http://www.koloni.org/pdf/01.pdf>).

Allotment gardening continued in Sweden through the twentieth century, remaining an important means of recreation and source of supplemental food. Historical analysis of the allotment movement in Sweden indicates that the allotment system realized its full potential in times of social-ecological crisis. The movement thrived best when it was necessary to produce alternative sources of food, such as during World War I and II and the economic depression of the 1930's (<http://www.koloni.org/pdf/01.pdf>). This pattern of economical/political crises as drivers for the allotment movement seems to have been evident in many North European countries (See table 1). The social-ecological crises during World War II sparked an explosion in the number of allotment plots in Sweden. The number of allotment gardens rose from 30.000 before the War, reaching 130.000 in the midst of it. It was during this time that approximately 10% of the garden products produced in Sweden were supplied by the nation's allotment gardens (<http://www.koloni.org/pdf/01.pdf>). In the years following the war the number of allotment gardens experienced a precipitous decline relative to the overall population. Holmer et. al (2002) shows another striking example of crises as the main driver for the movement. He notes the relief that allotment gardens provided to Germans in urban areas during World Wars I and II. Living conditions during these times were particularly difficult, and many suffered from malnutrition. Cut off from the areas of agricultural production and subject to the whim of the black market for foods and other goods, the allotment gardens became a secondary avenue by which urban dwellers could survive in a time of crisis. By the early 1930s the number of allotment gardens had risen from a few hundred in the Nineteenth Century to 450,000. By the close of the war Germany had seen this number rise to 800,000 (Gröning, 1996). In the years following the war the number of allotment gardens, again in this case, experienced a precipitous decline relative to the overall population.

Table 1. Trends in Organization and global social crises that sparked explosion in the allotment movement in Sweden and other countries in Europe.

Sources; Crouch and Ward 1988; Hall 1989; <http://www.koloni.org/pdf/01.pdf>; and Moran 1990.

Nation	Organizational Impetus	Crisis 1	Crisis 2	Crisis 3
Sweden	Urbanization\Industrialization	WWI	Economic crisis, (1930's)	WWII
Germany	Urbanization\Industrialization	WWI	Economic crisis, (1930's)	WWII
Britain**	Change in property rights	WWI	WWII	Environmental concerns
France	Urbanization\Industrialization	WWII		

** In tandem with industrialization and urbanization

The role of allotment gardens in maintaining ecosystem services in urban areas

Stockholm today has about 10.000 allotment gardens, occupying 210 ha and involving about 24.000 people (Björkman 2000; Nolin 2003; Moberg 2003). During recent decades there has simultaneously been a quite dramatic loss of green space. During the 1970s and 1980s, about eight and seven percent respectively were lost due to urban sprawl. Coupled to this there is an overall trend of biodiversity decline in the Stockholm County (Gothnier et al., 1999; <http://www.ab.lst.se>). However, no attempts have so far been made to estimate the contribution of allotment gardens to ecological function and the deliverance of ecosystem services in the urban landscape. What lesson can be learned from the literature and the Stockholm case study about the relation between local management practices in allotment areas and this ecological function on a regional ecosystem scale? In Table 2, we suggest a list of various services delivered from Allotment areas. We have divided them into services for the benefit of the allotment holders exclusively and ecosystem services generated for the well being of all of the inhabitants in Stockholm City (see table 2). In the analysis we focus on the latter part.

Table 2. Services generated by the social-ecological interactions that takes place within allotment areas in Stockholm. *Sources: Bolund and Hunhammar 1997; House of Commons 1998; Ableman 2000; Björkman 2000; Moberg 2003; Elmqvist et al., 2004.*

Services for the allotment holders	Public ecosystem services
Supply of fresh food	Recreation: Historical and cultural values
Social atmosphere that cuts across, age, race, culture and sex	Reduced natural recourse use for food transport and packaging
Contributing to physical health generally	Provision of community composting sites
Promoting health for elderly	Seed dispersal, since they are important feeding-areas and habitats for mobile links
Relief from strains and pressures from modern living	Pollination, since the allotments imposes prolonged flowering seasons
Therapeutic role for physically and mentally disabled	Noise reduction, since vegetation absorbs urban noise
	Genetic library maintenance. Some the plants are only still to be found in urban gardens
	Insect pest regulation, since they are habitats for predators of pests
	Surface water drainage, Since these areas have permeable surfaces, in a

	matrix of concrete
	Regulation of microclimate, since they compose in city vegetation and vegetation close to buildings
	Air filtration, vegetation close to sources of pollution, like roads, filter pollutants

The most characteristic ecosystem services delivered from the social-ecological interactions in allotment gardens are: recreation, reduced food transports and packaging, provision of community composting sites, pollination, seed dispersal, insect pest regulation, genetic library maintenance, surface water drainage, regulation of microclimate, air filtration and noise reduction. Some of these services have a *direct* impact on quality-of-life such as: recreation; reduced traffic, provision of composting sites; air filtration; regulation of microclimate; noise reduction and recreational and cultural values. Others have an *indirect* impact, such as surface water drainage; genetic library maintenance; pollination; seed dispersal and insect pest regulation.

The allotment associations often cultivate organically which makes the gardens good habitats or feeding grounds for natural enemies of pests. Abundance of food and provision of nesting boxes by the gardeners makes the allotment areas good habitats for small birds. Small birds feed on organisms considered to be pests in gardens and farmlands; birds also disperse seeds in the cityscape. Moreover, a prolonged flowering season makes allotment areas important feeding grounds for pollinators. The allotment gardens are often situated close to busy roads and in a matrix of concrete and asphalt, which make the trees and vegetation on them function as noise reducers, air filtrates, regulators of microclimate and the ground drain surface water, decreasing the risk of flooding (cf. Bolund and Hunahammar 1999, cf. Elmqvist et al 2004). However, focusing only on the production of ecosystem services will not lead to sustainable use by itself, because it does not address the dynamic capacity of the social-ecological systems that upholds the supply of these goods and services (Folke et al. 2002).

Conclusions

Allotment gardens have had several different points of origin in widely different national and historical contexts during the last one hundred and fifty years. The combined influences of urbanization and mass migration to industrial centers as agrarian economies collapsed caused the genesis of allotment gardening. From the epicenter in Germany the allotment garden movement spread into other European nations and Sweden. All over Europe allotment gardens have periods of rapid change and potential crisis in their respective social-ecological systems as driving forces in their development. In Stockholm a small group of female organizational entrepreneurs worked to establish the movement, which then took on a momentum separate from their founders. After their establishment, allotment gardens became crucial mechanisms by which ecosystem services that had previously existed, or were currently under threat, could be provided. Data on allotment area frequencies show strong, robust patterns of increasing and declining numbers of gardens in direct response to disturbances/crises in social-ecological systems. These data

suggest that allotment gardens in Stockholm represent one way in which actors in social-ecological systems can provide functional alternatives for necessary ecosystem services, thereby increasing overall resilience in the system as a whole.

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