Stockholm’s Green Wedges – Concepts, learning and collaboration on urban and peri-urban forestry

By Ulrika Åkerlund, National Board of Housing, Building and Planning

Introduction
Urban forestry is considered a natural part of a sustainable urban development. Yet, urban development is one of the major challenges to the continuance of urban and peri-urban forests. Located within urban areas or on the urban fringe, these forests are constantly threatened by exploitation for housing, infrastructure development or other changes in land use. Stockholm Region is recognised to be one of the greenest urban regions in the Nordic countries. It is also one of most rapidly expanding regions. During the last decades, municipalities in the region have realised the need for interdisciplinary planning and community engagement on a regional level for ensuring the longevity of the multiple benefits and services provided by forest and other green space in and around urban areas. This paper describes the Green Wedges of Stockholm as an integrative concept that has succeeded in becoming a platform for interdisciplinary collaboration between municipalities, NGO’s and citizens. The concept serves as a basis for regional green structure planning, spatial planning as well as local projects for improved access to attractive urban forests and green space.

On a national level The Swedish Environmental Protection Agency, The Swedish Forest Agency and The National Board for Housing, Building and Planning share the responsibility for urban and peri-urban forestry from the perspectives of nature conservation, forestry and spatial planning. The Stockholm case is interesting from all perspectives and concepts and methods developed by the Regional Planning Office is today used in national guidelines as well as basis for local nature conservation projects.
Urban forests in Sweden

Sweden is a country known for its large tracts of forest, covering 75% of the land. Sweden is also highly urbanised with 84% of the population settled in urban areas, many of which are located in or close to forested landscapes. Forests cover as much as 28% of the urbanised area and amount to 502,000 ha, which is more than double the area of protected forest in the whole country. Common access to forest and other natural environments is ensured by the right of public access “allemansrätten”, and cities have a long tradition of managing forests for the general enjoyment of the citizens. Visiting frequencies have been estimated to be 250 times higher in urban woodlands than in other forested areas and more than half of all forest visits in Sweden are estimated to take place in peri-urban and urban forests.

The majority of the peri-urban and urban forests in Sweden are remnants of old forest land with high values which has been preserved throughout the course of urban development. In many cities the cityscape is characterised by a patchwork of forest of varying sizes from small wooded lots to large forest landscapes. Studies have shown that larger cities (> 10,000 inhabitants) on average have more than 100 forested areas located within or in direct contact with the boundaries of the city. Now located in urban areas or in the urban fringe, these forests are threatened by development of urban settlement and infrastructure causing fragmentation and loss of values. This is especially the case in Stockholm and other larger cities in the country, where the populations are expected to increase significantly in the coming decades.

Spatial planning is one of the most important tools for preserving and developing the urban green resource. In Sweden, spatial planning is a local matter as each municipality is responsible for all spatial planning within its boundaries. This implies that the periphery of the municipality, where for example urban and peri-urban forests commonly are located, is often of less municipal interest than other more urgent matters such as housing and infrastructure.

The green wedges of Stockholm – Creating a common image

The Stockholm Region aims to be the most attractive urban region in Europe. Access to urban forests and green wedges for existing and future citizens is considered a natural part of the attraction.

The region comprises of 26 municipalities, intertwined by common structures such as settlement, industries, infrastructure and urban forests. This complex planning context has for decades been subject for an integrated spatial planning approach on a regional level. Stockholm Region is the only region in Sweden
having a specific regional spatial plan, with regional guidelines for urban development.

In the 1990’s the Regional Planning Office launched the concept of Stockholm’s Green Wedges. Throughout the 20th century, urban development spread its way out from the city core of Stockholm following the main public transport corridors, leaving the forest in between, which now constitutes the green wedges of Stockholm. In all there are ten wedges setting off from the rural parts of the region, leading right into the city centre. Broadleaf forest, boreal forest, mixed stands, wetlands, agricultural land and parks make up important ecological and recreational corridors. Only 20-30 % of the wedge area is protected as nature reserves. The remaining land is privately or institutionally owned multifunctional landscape. Each wedge has its own identity with for example a name and special characteristics.

![Figure 1 The ten wedges of Stockholm Region provide the citizens with a number of benefits. The regional perspective on the urban forests has created a common image, which is now implemented in the regional spatial plan as well as in the municipal comprehensive plans.](image-url)

The concept of the ten wedges communicates that these green areas are a common responsibility. Crossing geographical municipal boundaries the urban woods call for collaboration between municipalities and between planners, users, landowners and forest managers. The common image creates a platform from where it’s possible to set common goals and plans across municipal boundaries. Using the concept of the green wedges has been so successful that they now form an integrated part of the regional spatial plan, as well as being
implemented in all the 26 municipal comprehensive land-use plans in the Stockholm region.

Filling the concept with content – mapping social values

What makes the green wedges so valuable then? Ecological values are well known, especially in the protected areas of the green wedges. But the people’s use and appreciation of the urban forests, i.e. the social values are as important. During the last ten years, the Regional Planning Office has together with the municipalities identified the social values of the green wedges on maps. Measuring social values is a planning procedure that serves to improve knowledge and assessment of the public benefits offered by urban and peri-urban forests. The recreational or public social values of green areas have previously been rated either on the basis of ease of accessibility by means of tracks or paths, or by the number of visitors. The procedure of measuring social value applied in the Stockholm region seeks a more balanced view, emphasizing other existing values that have previously been undervalued or inadequately described. Based on research within the field of landscape architecture for characterisation of urban parks the method was developed through the help from focus groups, researchers, local planners and park/forest managers. Seven different social values within the green wedges were identified:

- Untouched green space,
- Woodland harmony,
- Open views and open landscapes,
- Biodiversity and lessons from nature,
- Cultural history and living environment,
- Activities and challenges,
- Facilities and meeting places.

The compilation of social values in the green wedges is currently applied in a wide range of contexts including regional planning, municipal comprehensive planning, information on recreation and tourist facilities, and forest management. On a regional scale the comprehensive inventory shows how social values are distributed throughout the region. One can therefore analyse and consider whether the distribution is even or whether there are any major imbalances. One can further assess whether it is possible to change the situation by, for example, improving accessibility and services. The mapping also identifies conflicts of interests, for example where new roads or urban development causes disturbances for urban forests with high recreational and nature conservation values. This method may provide a better basis for reviewing the locations of various activities and installations – such as power lines, buildings and roads – that reduce social values in urban green areas. It may also be useful for discussions of compensation for different types of encroachment. These cartographic surveys can form the basis for urban forest management plans, measure to repair facilities or ways of resolving other administrative issues. Finally, the
method has paved the way for strategic input in municipal planning, priorities and action plans.

The method was first tried and developed in one of the wedges and then carried out in the remaining nine. Today the method is used by the Swedish Forestry Agency in mapping social values in urban and peri-urban forests all over Sweden.

**Green links, regional cores and green bus stops – strategies for development**

Today the green wedges form an integrated part of the regional spatial plan and are hence included in regional goals and strategies. In order to preserve the green wedges there is a need to protect them while continuously improving their qualities. The fact that the region’s population is growing does not only create demands for new housing, but also for improved access to high-quality natural surroundings in built up areas. Larger green continuous areas are considered very valuable, but in some parts the green continuity is weak and needs to be strengthened. The regional plan presents different models on how to strengthen weak links by planting or developing parks. In order to increase public access to the green wedges, green hubs along the public transport network have been identified. This includes, for example, green bus stops, metro stations and boat hubs from where it’s easy to get to the green wedges by foot or bike. Bike lanes and walking paths have been developed and signs put up leading the way. This kind of improvements leads to greater accessibility, facilities and better care and maintenance.

**Awareness raising and development of qualities – National support to local nature conservation projects**

Since 2004 the Swedish Environmental Protection Agency (EPA) runs a national programme supporting local initiatives for nature conservation. Almost all of Sweden’s 290 municipalities are involved in such locally initiated and nationally funded nature conservation projects, in total 1513 projects. Of these more than one third concerns peri-urban or urban forests. Only in the Stockholm County there are more than 200 projects. Many projects have enabled municipalities, private individuals, companies and associations to work on nature conservation in Stockholm’s Green Wedges. This involves actual development of qualities in nature areas such as local restoration of hiking trails, management for biodiversity and recreation as well as awareness raising and information through inventories, green structure programmes, development of brochures and maps and guided tours. Here local peoples commitment, will and visions are utilised to put nature conservation in context and create local consensus about how conservation work can also improve the conditions for outdoor recreation, better public health and local growth.
Collaboration within the Rösjö wedge

The concept of green wedges has raised the awareness of the urban forests among politicians as well as the general public. Local NGO’s are taking action for preserving and improving qualities in the green wedges. One example is the Network for Protection of Stockholm Green Wedges – a network of 17 NGO’s who work on raising awareness of the importance of the urban forests among authorities as well as local municipalities as well as promoting outdoor recreation.

There have been several collaboration projects in the different wedges. One project in the Rösjö wedge involved six municipalities and several NGO’s. The motive for the project was to preserve and develop the values of the wedge as well as to increase public access. Together the municipalities and different stakeholders formulated common goals of what this wedge should be. This involved: good living environment for all citizens (in despite of age, disability etc), improved access and information, efficient, innovative and cross-boarding collaboration. Throughout the project focused on development of values and not preservation. Local politicians were invited at an early stage to discuss the respective municipality’s ambition and intention in developing the values of the green wedge. As one concrete result of the project, an excursion map of the whole wedge was developed, without the municipal boundaries showing the landscape as a whole. They also created an interactive map on the Internet.

When the excursion map was finished the project organized a bus trip for politicians from all six municipalities through the whole wedge, from Danderyd in the south to Sigtuna in the north. Erik Andersson, municipal councillor in Täby, was one of the politicians on-board the bus. He stated:

“It is vital that knowledge about the possibilities in these areas is available both internally within the municipality and externally – particularly now that we’re all building more densely on the periphery of Stockholm. Everyone has been working on ‘their own’ part of the wedge, but if you want to see the big picture it is essential that all the municipalities involved collaborate. Green zones are one thing; green zones with quality are quite another. We know that large areas with continuity attract people. They are also one of the reasons why some people move to a particular municipality.”

Concepts, learning and collaboration

Urban and peri-urban forestry concerns a wide range of stakeholders and professions, such as foresters, spatial planners, environmentalists etc, each having their own language and terminology which easily creates language barriers and
conflicts. In Stockholm, the concept of the green wedges was a way to create a common image for different stakeholders, a common platform for discussion about common goals. It took a long time to establish the concept, but once adopted it is an efficient tool in raising awareness and putting urban forestry on the political agenda. Nevertheless, a concept has to be filled with content. Mapping the social values of the green wedges generated a valuable learning process and provided important knowledge to be used in a planning context. Improved access by “green hubs” along the public transport network, local nature conservation projects and other initiatives have all contributed to develop the content and qualities of the green wedges.

The multifunctional landscape of urban forests is challenging to traditional planning and forestry. Sweden has long tradition of strong political sectors where forestry, housing, environmental protection, infrastructure etc has its own legislation, economical instruments and terminology. Each sector functions quite well in vertical terms, i.e. from central to local level. But in urban forestry different fields of interest meet and have to combine their tools in a new context. This calls for new ways of co-operation and collaboration horizontally across disciplines and administrational boundaries. The Stockholm region case illustrates the need of learning from different professional traditions. A typical planning tool – creating an image, a concept, has been accepted by foresters, landowners and politicians. A tool to identify the social values of parks developed by landscape architects was used as a basis to identify the social values in the forests of the green wedges. Planners, foresters, landowners, traffic planners, NGO’s and users as well as for example the health sector, teachers and the tourist sector, can contribute to improving qualities and access, and raising awareness.

However, local initiatives need support from the regional and national level, which have been apparent in the case of many of the local projects within the green wedges. In order to truly contribute to sustainable urban development, new ways of co-operation and collaboration in urban forestry both horizontally and vertically, are necessary.

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