Woodlands in and around Scandinavian cities—
Innovative research and future perspectives

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Extended abstract

After centuries of existence in the shadow of commercial forests and forestry, woodlands in and around towns receive growing attention in Europe. The sprawling nature of today's post-industrial cities has blurred the borders between urban, suburban, and rural where woodlands feature as more or less isolated patches of varying size, ranging from groups of trees and small copses to large wooded landscapes. Urban woodlands are here defined as treed areas, more than half a hectare in size with uncultivated ground vegetation, situated within or adjacent to cities and towns.

Woodlands are among the most natural parts of urban landscapes and compared to parks and other types of urban green space, they tend to be more multi-purpose and able to absorb many uses, whilst also providing a wider range of ecosystem services, and are therefore regarded as key components for the development of multifunctional urban green infrastructures and local strategies of sustainable urban development. However, by falling outside the scope of National Forest Inventories, data to quantify and characterise urban woodland resources are still lacking or fragmentary on a large scale. This constitutes important knowledge gaps for the development of strategies for integration of woodland resources in green infrastructure planning and political agendas on sustainable urban development.

In Europe, the Scandinavian countries of Denmark, Norway, and Sweden have taken the lead in closing this knowledge gap. Combining findings from recent and on-going research, it is now possible to develop national overviews of 1) urban woodland coverage and its spatial configuration (patch size and frequency) along the urban to peri-urban gradient, and 2) ownership structures and their governance.

Woodland coverage and spatial configurations in and around all Danish and Swedish cities > 10,000 inhabitants (n=176) was found to reflect regional landscape structures and woodland cover. Contrary, the spatial distribution along the urban to peri-urban gradient and size configuration of woodland patches shows similar traits between cities with varying woodland cover, landscape context, and population trends. Thus, while woodland coverage increased significantly from cities settled in regions of large-scale agriculture to regions of mosaic woodland and small-scale farming, and again to woodland-dominated regions, woodland cover peaked in the urban fringe zone (0-2 km from the city border) irrespectively of landscape context and population increase. The surveyed area contained 54,462 woodland patches with a mean size of 19.5 ha. However, the woodlands had an exponential distribution to size classes where patches smaller than the mean size contributed 92% of the total count. Patches of 0.5-1.9 ha in size encompassed more than half of the total count (56.3%). Patches of 2-4.9 in size were also common with 20.4% of the total count, while patches of 5-9.9 ha, 10-19.9 ha, and 20-49.9 ha in size were fairly common (Fig. 3). In comparison patches exceeding 50 ha were uncommon. This exponential distribution of woodland patches to size classes was consistent across the urban (within city borders), urban fringe (0-2 km from city borders) and peri-urban zones (2-5 km from city borders) and across cities settled in different regional landscape structures. These comparable spatial distribution patterns and size configuration of urban woodland patches across cities with varying woodland cover, landscape context, and population provide a common ground for a definition of best urban woodland management practices and its integration in green infrastructure planning and decision-making that takes into account the size variation and the fragmented nature of the urban woodland resources (Nielsen et al., 2011).

However, results from national surveys on municipal urban woodland governance in Denmark, Norway, and Sweden consistently demonstrate a general lack of management plans and a significant drop in recreational facilities provision with decreasing woodland size, indicating that the potential of the many small woodland units as part of green infrastructure planning and human health promotion is largely being overlooked. In relation to the potential of the many small woodland units, results from survey among Scandinavian municipalities show that urban woodland units frequently border other types of green space and/or terrestrial and aquatic nature areas, indicating their important role in the urban landscape by contributing to ecological and recreational connectivity and thus overall provision of ecosystem services. In regards of the contribution of urban woodland resources to multifunctional urban green infrastructures and ecosystem service provision, platforms are therefore needed to facilitate cross-sectorial and cross-ownership planning and management.

In the presentation these key findings will be detailed and discussed in relation to a wider European perspective.

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