Arboriculture & Urban Forestry 2008. 34(1):59–60.

ARBORICULTURAL ABSTRACTS

TOOLS FOR MAPPING SOCIAL VALUES OF URBAN WOODLANDS AND OTHER GREEN AREAS

Liisa Tyrvainen, Kirsi Makinen, and Jasper Schipperijn

Since the social values of urban woodlands are not always sufficiently taken into account in decision-making on urban land-use and green space planning, new means of collecting the experienced values of urban green areas and integrating this information into the planning processes are needed. The main aim of this study was to develop a simple method to describe the experienced qualities of green areas for strategic green area planning purposes. In a postal survey conducted in Helsinki, Finland, general attitudes towards and benefits felt to be derived from green areas as well as site specific information about the experience values were gathered. Local residents were asked to identify those areas on a map of the study area that had particular positive qualities, such as beautiful scenery, peace and quiet, and the feeling of being in a forest as well as those areas with negative features. These results were compiled in map form using GIS software. The results highlight the most valued sites as well as problem areas within the study area. The most important features associated with favorite places were: tranquility, the feeling of being in a forest, and naturalness. The results suggest that the method is communicative and relatively easy to use in both collaborative green area planning and land-use planning. (Landscape and Urban Planning 2007. 79(1):5–19)

GEOSPATIAL METHODS PROVIDE TIMELY AND COMPREHENSIVE URBAN FOREST INFORMATION

Kathleen T. Ward and Gary R. Johnson

Urban forests are unique and highly valued resources. However, trees in urban forests are often under greater stress than those in rural or undeveloped areas due to soil compaction, restricted growing spaces, high temperatures, and exposure to air and water pollution. In addition, conditions change more quickly in urban as opposed to rural and undeveloped settings. Subsequently, proactive management of urban forests can be challenging and requires the availability of current and comprehensive information. Geospatial tools, such as, geographic information systems (GIS), global positioning systems (GPS) and remote sensing work extremely well together for gathering, analyzing, and reporting information. Many urban forest management questions could be quickly and effectively addressed using geospatial methods and tools. The geospatial tools can provide timely and extensive spatial data from which urban forest attributes can be derived, such as land cover, forest structure, species composition and condition, heat island effects, and carbon storage. Emerging geospatial tools that could be adapted for urban forest applications include data fusion, virtual reality, three-dimensional visualization, Internet delivery, modeling, and emergency response. (Urban Forestry & Urban Greening 2007. 6:15–22)

GROWTH OF *BETULA PENDULA* ROTH. THE FIRST SEASON AFTER TRANSPLANTING AT TWO PHENOLOGICAL STAGES

Ingjerd Solfjeld and Per Anker Pedersen

The root extension rate of *Betula pendula*, transplanted at two phenological stages, was studied in a Nordic climate. Landscape-size trees were transplanted from the field into root-study boxes (rhizotron) in early and late spring of 1999 and 2000. In early spring, 6 trees were transplanted when the leaves had just started to unfold; likewise, in late spring, six trees were transplanted when the leaves were fully unfolded and the shoot extension was in progress. Root growth was recorded during the first post-transplant season and the tree roots were finally excavated. Results indicate that the root extension rate of *B. pendula* follows seasonal soil temperature. The mean root extension rates at ten day intervals varied from 4 to 11 mm/day with a total average for the growing season of 7 mm/day in 1999 and varied from 4 to 9 mm/day with a total average for the growing season of 4 mm/day for 2000. The average length of new roots was 89 cm and there was no significant difference in length, dry weight or number of new roots between the two transplant times. It appears, therefore, that the phenological stage at transplanting during the period from bud break to fully developed leaves has minor effect on landscape establishment of *B. pendula*, when an adequate amount of water is provided. (Urban Forestry & Urban Greening 2006. 5(2):101–106)

URBAN VEGETATION MAPPING USING SUB-PIXEL ANALYSIS AND EXPERT SYSTEM RULES: A CRITICAL APPROACH

S.W. Myint

Since the traditional hard classifier can label each pixel only with one class, urban vegetation (e.g., trees) can only be recorded as either present or absent. The sub-pixel analysis that can provide the relative abundance of surface materials within a pixel may be a potential solution to effectively identifying urban vegetation distribution. This study examines the effectiveness of a sub-pixel classifier with the use of expert system rules to estimate varying distributions of different vegetation types in urban areas. The Spearman's rank order correlation between the vegetation output and reference data for wild grass, man-made grass, riparian vegetation, tree, and agriculture were 0.791, 0.869, 0.628, 0.743, and 0.840 respectively. Results from this study demonstrated that the expert system rule using NDVI threshold procedure is reliable and the sub-pixel processor picked the signatures relatively well. This study reports a checklist of the sources of limitation in the application of sub-pixel approaches. (International Journal of Remote Sensing 2006. 27(13):2645–2665)

URBANIZATION PRESSURES ON THE NATURAL FORESTS IN TURKEY: AN OVERVIEW

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Forests used to be the main field of interest for rural communities, but now they attract the attention of urbanites too. The forest-public relationship is important as forests protect water resources, preserve the soil and increase its productivity, provide positive effects on climate and health in general, and can be used for recreation and tourist purposes. This study aims at assessing how the current rapid urbanization process in Turkey affects forests. Urban requirements such as biomass for heating, education facilities, settlements, recreation, tourism and employment exert various pressures on the forest. In this study we assessed these pressures and suggest that forest legislations should be developed to respond to expectations of urbanites from forests, new recreation areas should be developed and urbanites' interest in and knowledge of the forests should be increased, where all social groups including the forestry authority should work together. (Urban Forestry & Urban Greening 2007. 6:83–92)

COMMUNICATION BETWEEN SCIENCE, POLICY AND CITIZENS IN PUBLIC PARTICIPATION IN URBAN FORESTRY—EXPERIENCES FROM THE NEIGHBOURWOODS PROJECT

Gerben Janse and Cecil C. Konijnendijk

The demand for sound scientific information and public participation is particularly great in urban forestry. Urban society's manifold perceptions, preferences and demands for urban forest goods and services need to be considered, indicating the necessity for socially inclusive planning processes. Successful policies can only be formulated by establishing close links with, for example, urban planning and municipal policies. Inherently, this means that close ties between research and policy are required. This article discusses the outcomes of the NeighbourWoods research and development project in which a wide range of tools for public participation were tested in six urban woodland case studies across Europe. A distinction was made between characteristics of the specific participatory tools and those of the communication process between the facilitators (scientists) of the participation process and the end-users of information (local policy-makers). Public willingness to participate depends on factors such as existing controversy, emotions attached to the forest, and perceived dangers, e.g., in terms of threats to the status quo. Policy makers' willingness to involve themselves depends on political interests, on prior experience with public participation processes, and on their trust in the facilitators of the public participation process. Findings confirm that a set of tools comprising a step-wise process from informing the public in an attractive way, collecting information on public opinion, towards fully participatory approaches such as direct involvement in decision-making is most likely to ensure socially inclusive planning. Communication with policy-makers requires a high degree of openness, clearly explaining every phase of the process, being open about each other's expectations, in short, by developing relationships based on mutual trust. (Urban Forestry & Urban Greening 2007. 6:23–40)