URBAN FORESTRY IN TRANSITION -

Addressing the needs of changing societies

CARE-FOR-US II and GreenMan project conference, Tartu, Estonia
9.10.2013 - 11.10.2013

BOOK OF ABSTRACTS

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Tartu
city of good thoughts

Thursday 10 October

8.30	**Registration**	
9.30	Dorpat Convention Center, Turu 2, TASKU, Tartu	*Hall*
9.30	**Conference opening.** • Welcome by the Rector of Estonian University of Life Sciences, Mait Klaassen • Welcome by the Tartu City Vice-Major, Raimond Tamm • Welcome by the CARe-FOR-US II coordinator, Dr. Cecil Konijnendijk van den Bosch • Welcome by and GreenMan project coordinator, Olga Vassilenko	
9.50	**Keynote lecture I** Urban forestry in changing societies • Professor Simon Bell, Estonian University of Life Sciences	*Struve Room II*
10.30	Coffee/tea break	*Hall*
11.00	**Parallel session I** Heath, Social and Community Benefits in Urban Forests • Improving urban woodlands in deprived communities. Eva Silveirinha de Oliveira. • Is the hassle really worth it? Reflections on managing an urban woodland in Scotland. Simon Bell. • User participation in urban green space management - for the people or the parks? Julie Frøik Molin and Melissa Anna Murphy. • An Evaluation of the restorative qualities of parks in Estonia. Kadri Maikov. • Stress reducing effects of different urban green areas. Ann Ojala.	*Struve Room II*
	Parallel session II Ecological and Environmental aspects in Urban Forests • The city forest in periurbanization process as the invasion gate for synanthropic woody species on example of the processes taking place in the Młociny park's flora. Ewa Zaras-Januszkiewicz. • Methodology for assessment of urban forest ecological status in changing air pollution conditions. Dace Piraga. • Green infrastructure to decrease human exposure to pollutants. Arne Sæbø. • Describing the existing condition of urban forests in three Estonian towns. Gloria Niin.	*Parrot Room*
12.30	Lunch	*Hall*
13.30	**Parallel session III** Maximising recreational potential in Urban Forests • Public participation in a forest recreation planning process in Warsaw Metropolitan Area. Agata Cieszwska. • Using immersive 3D landscape simulation to support participatory landscape planning: challenges and benefits observed in COMCOT project. Peeter Vassiljev. • Model for assessment of recreational value of forests in Latvia. Janis Donis. • Towards new recreational functions of suburban forests - Warsaw Promotional Forest Complex case study. Renata Giedych. • Improving biodiversity and soundscape in green spaces. Alicia López-Rodriguez.	*Struve Room II*
	Parallel session IV Good practice in Urban Green space inventory and management • Tree inventory in Estonia. Ebe-Kai Uibo. • Tree inventory in urban areas. Edgars Nielans. • Street tree managements practice in case of Sankt Petersburg. Alla Puzakova. • Presentation of the manual "How to Manage Urban Green Areas" for Tartu, Rezekne and Pskov. Jekaterina Balicka, Anna-Liisa Unt and Liina Jürisoo. • Implementing ArcGIS based tools for urban tree inventory and management in the GreenMan project. Henn Runnel.	*Parrot Room*
15.00	**Poster session** and coffee/tea break. •Detecting landscape ecological aesthetics in urban green spaces. Maija Jankevica. •The Diversity of ancient woody species in urban forests. Beata Fornal-Pieniak, Ewa Zaraś-Januszkiewicz, Marcin Ollik, Barbara Żarska, Edyta Rosłon-Szeryńska. • Principles of parks and urban forest dendroflora with preferred forms of recreation consistent with the	

	idea of sustainable development. Edyta Rosłon-Szeryńska, Ewa Zaraś-Januszkiewicz, Beata Fornal-Pieniak, Sikorski Piotr. • The legacy of the soviet era and failed land restiution in Tallinn urban forests. Gloria Niin. • Development and problems of urban forestry in Poland. Roman Jaszczak, Sandra Wajchman. • The most valuable non-native trees and shrubs in the public green spaces of Rēzekne. Pēteris Evarts-Bunders, Gunta Evarte-Bundere, Daina Lakša. *Hall* **Landscape theatre** – an virtual tour trhough urban forest. Peeter Vassiljev *Struve Room II*
16.30	**Keynote lecture II** Urban forestry and ecosystem services • Dr Jakub Kronenburg, University of Łodz, Poland
17.10	Conclusion of day 1 *Struve Room II*

19.00 22.00	**Reception and conference dinner** with entertainment *Dorpat Hotel Restaurant*

Friday 11 October

8.30 9.00	**Registration** Dorpat Convention Center, Turu 2, TASKU, Tartu *Hall*		
9.00	**Keynote lecture III** Urban forestry for human health and wellbeing • Professor Ulrika Stigsdotter, University of Copenhagen		
9.45	**Keynote lecture IV** Governing urban forestry in changing societies • Maria Jaakkola, City of Helsinki *Struve Room II*		
10.30	Coffee/tea break *Hall*		
11.00	**Parallel session V** Trees in parks and gardens • Limbwalkers: narratives of language, labour, agency and learning in urban forestry. Adrina Caroline Bardekjian. • Decoupling ceremony and territory-Aproposal for urban woodland burial as performative infrastructure. Ann Sharrock. • Lisbon's historic gardens, a host place for the world's trees. Ana Luisa Soares. • From abandoned botanical garden to urban botanic forest: an experiment in Liège (Belgium). Catherine Szanto. • Urban Acupuncture - the big effect of small spatial changes on the users of an urban wasteland. Anna-Liisa Unt. *Sturve Room II*	**Parallel session VI** Planning and design in the Urban Forest • Urban forestry or forest urbanism? Wim Wambecq. • Urban forestry – an 'architecture of urban futures'. Alan Simson. • Urban forest governance in the city of Zagreb. Silvija Krjater Ostoić. • Reconnecting urbanisations: transitional landscapes and service infrastructures. Richard Le Brasseur. • Applying social sustainability criteria in public open spaces. Friedrich Kulhlman. *Parrot room*	**Green Man staff meeting** *Krause Room*
12.30	Lunch *Hall*		
13.30	**Final plenary session and round table** *Struve Room II*		
15.00	Coffee tea break *Hall*		
15.15	Departure for Tallinn Airport Bus is arranged at cost of €10 per person (time 2.5 hours travel time, 55 seats maximum).	**CARe-FOR-US II steering group meeting** *Hall*	**Green Man staff meeting** *Krause Room*

IMPROVING URBAN WOODLANDS IN DEPRIVED COMMUNITIES

Eva Silveirinha de Oliveira, Catharine Ward Thompson *OPENspace Research Centre, ESALA, University of Edinburgh*

Key Words : urban woodlands, deprived communities, perceptions, quality, use

A growing body of evidence suggests that green spaces may influence, positively, psychological wellbeing; promote physical activity and social interaction. However, most of the studies have evaluated spaces that have been subject already to some form of intervention/design. This paper presents the first phase of a project that has taken advantage of a rare opportunity, where planned interventions to enhance urban populations' access to local woodlands in deprived communities will take place over the next two years. The study focuses on six communities, of which, three will have an intervention in their local woodlands, while the other three will act as comparison sites.

This paper explores some initial questions: what were people's perceptions of their local woodlands prior to any changes having been made to the physical environment? Are the woodlands used? If so, how? What is their environmental quality? The quality of the woodlands was monitored using an environmental audit tool, which covered key aspects of the woodland setting. The audits were conducted by two trained landscape architects and members of the local community. A detailed survey also undertaken with local residents explored the community's use and views of the woodlands. This paper will present the finding from the audits and discuss it in relation to the survey's results. Preliminary findings show that the number of visitors to the woodlands was low. Although some users rated the woodland's quality relatively highly (variety of its spaces; vegetation: sensory appeal), the majority tended to be more critical about the lack of facilities, poor signage and paths, lack of maintenance, litter and safety.

These findings are important to set up the baseline framework. This will help to monitor how and what type of intervention can change perceptions and enhance access to woodlands in the future, supporting the benefits refereed in the literature.

IS THE HASSLE REALLY WORTH IT? REFLECTIONS ON MANAGING AN URBAN WOODLAND IN SCOTLAND

Simon Bell *Estonian University of Life Sciences, Tartu, Estonia*

Key Words :community woodlands; voluntary sector; woodland management

Urban community woodlands, or so –called "Woodlands In and Around Towns" (WIAT), have become a feature of the environmental and voluntary sector in the UK in general and Scotland in particular over the last 20 or so years. A number of local woodland organisations have sprung up to develop (eg by planting) or to manage existing woodlands on behalf of the local community. Some of these are in rural locations and have the potential to be managed economically to some extent, ie gaining revenues from timber sales, while most in the urban context face much more people pressure and can cost quite a lot of money to keep going. Normally these woodlands have been funded via grants from various bodies such as the Forestry Commission. These tend to pay for initial development and capital projects such as planting, path construction or provision of tools and equipment. However, the day to day management is almost always in the hands of dedicated volunteers from the local community. This presentation focuses on the experiences of volunteers taking on and managing urban woodlands for local communities. The author has served on the committee of a local woodland group in Dunbar in Scotland for 10 years and is currently the convenor (or chair). The group finally obtained ownership of an 18ha woodland surrounded by new housing in 2007 and initiated a management plan involving extensive thinning, path reconstruction and a range of community, education and conservation activities funded through WIAT grants and other sources as well as timber sales. The experience of this activity is that while it is rewarding in some ways it can also be exhausting. The population of Dunbar is 7000 people, membership of the group is some 200 people and the active core and committee is around 12 people. In these days of economic and social change it is more and more difficult to find people willing to join in voluntary groups and many people find themselves on several different committees. This places greater burdens on a decreasing nucleus of people. Add to that the constant problems of raising funds then many people naturally wonder if the hassle is really worth it. It can be concluded that increasing burdens are placed on fewer active people.

USER PARTICIPATION IN URBAN GREEN SPACE MANAGEMENT – FOR THE PEOPLE OR THE PARKS?

Hanna Fors, *PhD-fellow, Department of Landscape Architecture, Planning and Management, Swedish University of Agricultural Sciences*
Julie Frøik Molin, *PhD-fellow, Department of Geosciences and Natural Resource Management, University of Copenhagen.*
Melissa Anna Murphy *PhD-fellow, Institute for Landscape and Spatial Planning, Norwegian University of Life Sciences.*

Key Words : public participation; public urban green space; green space management; park quality

Public urban green spaces provide many benefits to local residents. Traditionally, the sites were managed solely by e.g. municipal green space managers, but during the last decades there has been a shift towards also including citizens in green space management. Participation in these management processes today is generally seen as desirable. This literature review paper surveys current empirical studies on user participation in public urban green spaces – including both participation in management processes and physical participation in maintenance activities - and seeks to answer the following questions: What reasons for promoting user participation can be found in research? How are green spaces affected by user participation? Can user participation levels be attributed to management processes, participants or characteristics of the green spaces? Is participation an end unto itself or are the physical results evaluated in research? Results: Green space participation research to date mainly focuses on process-oriented factors such as making planning processes more efficient, bringing user needs into green space management, individual values reinforcement, and giving people more trust in the government. On the contrary, the physical outputs, i.e. improved quality of the actual green space, is seldom covered in research. Satisfactory levels of user participation are mainly attributed to the facilitation of participation processes and the characteristics of the participants. A knowledge gap remains regarding how participation actually benefits the quality of green spaces and whether such processes are suited to practicalities of spatial management. This opens a door to further research on how user participation affects the quality of green spaces.

AN EVALUATION OF THE RESTORATIVE QUALITIES OF PARKS IN TARTU, ESTONIA

Kadri Maikov *Estonian University of Life Sciences*

Estonian parks are well known through history for their dendrological qualties. Usually, when seeing a map of Tartu, there are no nuances of green areas – there are abandoned areas, well-managed parks, green squares. This study reveals the emotional and restorative qualties of 92 parks/green corners of Tartu. These green areas were evaluated using the concept of room characteristics (Berggren-Bärring, Grahn, 1995) and PRS (Hartig et al 1996) scale by an expert group (three persons who have paid to do it and have followed the environmental psychology course) in the summer of 2011. Method reading point is on the green room, not on emotions, exactly by theory description. How restorative the parks are can be described through correlations between room characters and PRS scale. Results confirn uniqueness of Estonian landscape as being represented both extremes - open areas with long views and very dense city forest. This is expected since activities are also often associated with the Estonian culture. Many parks looks similar to forests and it looks like they have been there a quite long time.

Reference : Berggren-Bärring, A-M. & Grahn, P. Grönstrukturens betydelse för användningen: *En jämförande studie av hur människor i barnstugor, skolor, föreningar, vårdinstitutioner m fl organisationer utnyttjar tre städers parkutbud.* Landskapsplanering Rapport 95:3, Alnarp. 1995

Korpela, K; Hartig T 1996 *RESTORATIVE QUALITIES OF FAVORITE PLACES*, Journal of Environmental Psychology (1996) 16, 221–233

STRESS REDUCING EFFECTS OF DIFFERENT URBAN GREEN AREAS

Ojala, A., Tyrväinen, L ,*Finnish Forest Research Institute (Metla), BOX 18, FI-01301 Vantaa, Finland*
Korpela K., *School of Social Sciences and Humanities/Psychology, FI-33014 University of Tampere, Finland*
Lanki, T. *National Institute for Health and Welfare, Environmental Epidemiology Unit, P.O. Box 95, FI-70701 Kuopio, Finland*

Key Words : stress, well-being, urban green areas, restoration, field experiment

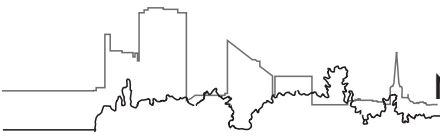
The potential of natural and green spaces in reducing stress and thus enhancing the quality of living in urban environments has been recognized. It is important to find solutions for improving the health of urban inhabitants, and to increase the understanding of the ecological and social benefits of urban nature (e.g. Tyrväinen et al. 2005). In spite of the growing research base, still more evidence and systematic research is needed on the psychological and physiological health effects of green spaces. This presentation is about the psychological and physiological stress reducing effects of different urban green areas. It is based on an experimental study in Helsinki, Finland.

We chose three different experimental sites, all situated in the Helsinki city, the capital of Finland. The three study sites were a constructed urban park, urban woodland and the centre of Helsinki. We used several psychological and physiological measures for stress reduction like the Restorative Outcome Scale (Korpela et al. 2008), Perceived Restorativeness Scale (Hartig et al. 1997) salivary cortisol concentration and blood pressure. The experiment consisted of a 15-minutes viewing session which was followed by a 30-minute walking session on a given course. The measurements were done at the beginning of the experiment, after viewing and after walking. The participants were 30-61 years old healthy, non-smoking adults. The final sample consisted of 95 participants, of whom 77 we have all measures from all three study sights, which they visited in a group of maximum four people. The data were analysed in SPSS, using repeated-measure ANOVA. Our results showed that there was a strong difference between the city centre and urban green areas. The participants felt more restored after visiting green areas, compared to the city centre. The differences between the urban green areas were smaller. However, the urban woodland had more restorative qualities than urban park.

Reference : Hartig, T., Korpela, K., Evans, G.W., & Gärling, T. (1997). *A measure of restorative quality in environments.* Scandinavian Housing and Planning Research, 14, 175-194.

Korpela, K. M., Ylén, M., Tyrväinen, L., & Silvennoinen, H. (2008). *Determinants of restorative experiencesin everyday favorite places*. Health & Place, 14, 636–652.

Tyrväinen, L., Silvennoinen, H., Korpela, K. & Ylen, M. (2007). *Luonnon merkitys kaupunkilaisille ja vaikutus psyykkiseen hyvinvointiin (The importance of nature for urban inhabitants and its effect on psychological well-being)*. Metlan työraportteja (METLA working papers), 52, 57–77.



Notes

THE CITY FOREST IN PERIURBANIZATION PROCESS AS THE INVASION GATE FOR SYNANTHROPIC WOODY SPECIES ON EXAMPLE OF THE PROCESSE TAKING PLACE IN THE MŁOCINY PARK'S FLORA

Ewa-Zaraś Januszkiewicz, Beata Fornal *Department of Environmental Protection, Faculty of Horticulture, Biotechnology and Landscape Architecture, Warsaw University of Life Sciences*
Pieniak-Marcin *Department of Experimental Design and Bioinformatic, Faculty of Agriculture and Biology, Warsaw University of Life Sciences*
Ollik- Barbara Zarska *Department of Landscape Architecture, Faculty of Horticulture, Biotechnology and Landscape Architecture, Warsaw University of Life Sciences*

Key Words : urban forest, *Ailanthus altissima*, *Ptelea trifoliata*, invasive species, the Młociny park

The urban forests included in the city's green areas in Warsaw represent one of the most valuable element of the city green stucture. Their high natural value due to the fact that they are part of the least transformed by man areas that are part of the city. At the same time, these areas are adjacent to destinations including the estates of single family houses with backyard gardens, the urban green areas and the main roads. This kind of neighborhood is a potential source of introduced species, often characterized by an invasive life strategy, which appear in these valuable areas. In this way the urban forests become a specific gateway, through which foreign plant species, not always desirable, penetrate suburban areas and open spaces. The aim of this study was to identify the synantropic trees and shrubs species of occurring in the Młociny Park, which is at the same tam a part of: Warsaw and the Kampinoski National Park protection zone. Based on literature studies and fieldwork the list of the apophyts and anthropophyts woody species occuning in the Młociny Park was carried. The subject of the presentation are only anthropophytes species, because their invasive life strategy. 74 synantropic woody species was observed (41 native psecies - apophyts and 33 introducted species - anthropophyts). There are 13 species of megafanerophyts and 20 species of nanofanerophyts in the observed group of the synantropic woody plants. The observed megafanerophyts are: *Acer negundo, Acer saccharinum, Fraxinus pennsylvanica, Prunus serotina, Quercus rubra, Rhus typhina, Robinia pseudoacacia* from North America, *Aesculus hippocastanum, Ailanthus altissima, Juglans regia, Morus alba* from Asia and Europe and 2 culticars *Tilia 'Euchlora', Craraegus monogyna 'Rubra Plena'*. The observed nanofanerophyts are: *Berberis koreana, Caragana arborescens, Cornus alba, Cotoneaster lucidus, Deutzia scabra, Lonicera tatarica, Philadelphus coronarius, Prunus cerasifera, Rosa rugosa, Syringa josikaea, Syringa vulgaris, Weigela florida* from Asia and Europe, *Crataegus pedicellata, Physocarpus opulifolius, Ptelea trifoliata, Ribes sanguineum, Symphoricarpos albus* from North America, *Spiraea xpseudosalicifolia* (natural and very expansive hybrid between S. salicifolia nad northamerican S. douglasii) and cultivars *Corylus xcolurnoides* , *Forsythia xintermedia*.

This list shows *Ailanthus altissima* and *Ptelea trifoliata*. Reasons for which those species are so interesting are as follows: *Ailanthus altissima* is a tree very well tolerate the urban habitat conditions, primarily due to the higher temperatures typical for urban areas ('the heat island'), Ptelea trifoliata is a species occurs practically only in the city parks. Both species are not uncommon in Polish open areas and of the Młociny Park, lokated close to valuable natural areas, such as the Vistula Valley (The Special Protection Areas and Special Area of Conservation - Nature 2000) and the Kampinoski National Park, may be an example of penetration of the alien invasive species to these valuable areas. For these species spread pattern analysis was performed, assess the dynamics of population and density evaluation. Also determined the minimum requirements in terms of the species required for the development of new plant space. These data make it possible to create a pattern of the spread of these plants for the monitoring of plants and possibly counteracting the effects of plant growth area, threatening valuable natural areas.

METHODOLOGY FOR ASSESSMENT OF URBAN FOREST ECOLOGICAL STATUS IN CHANGING AIR POLLUTION CONDITIONS

Dace Pīrāga, Oļģerts Nikodemus *Faculty of Biology, Faculty of Geography and Earth Sciences University of Latvia*

Key Words :ancient species, diversity, urban forest, Tarnów

Scots pine (*Pinus sylvestris L.*) stands in urban forest park – Mezaparks – in Riga City have been developing under intense long-term anthropogenic stress (Liepa et al. 2003). Mezaparks has been affected by air pollution for decades due to the nearby industrial area from late 19th to early 20th century. Yet, previous studies have not given the answer to the question whether the recovery of pine stands following removal of anthropogenic stress is long or short-term. Also the accumulation and migration processes of plant nutrients and heavy metals in soil are unknown. In order to determine the actual air pollution level, spatial distribution of heavy metals in pine bark and mosses (Hylocomium splendens and Pleurozium schreberi) was analysed and lichenoindication was carried out. Index of Atmospheric Purity was calculated based on four species of lichens. Concentration of heavy metals in soil O and B horizons was measured in order to examine the spatial distribution of historical air pollution. Moreover, soil macronutrients (Mg, Ca, K, P2O5) were determined. Relative additional annual increment of forest stands was calculated in order to identify reaction of forest stands to the dynamics of anthropogenic stress. The study shows that the applied methodology allows assessing the anthropogenic stress as well as reaction of forest stands to the stress.

Reference : Liepa I., Galaktinova D., Pospelova G., Ramans K., Nikodemus O. 2003. Influence of the Riga phosphate plant on pine forest stands and the dynamics of anthropogenic stress after shutdown of the plant. – *Proceedings of the Latvia University of Agriculture*, 9: 46-51.

GREEN INFRASTRUCTURE TO DECREASE HUMAN EXPOSURE TO POLLUTANTS

Arne Sæbø1 *Norwegian Institute for Agricultural and Environmental Research*
Stanislaw Gawrónski *University of Life Sciences, Warsaw Poland*
Hans Martin Hanslin *Norwegian Institute for Agricultural and Environmental Research*

Increase in the proportion of the world population living in urbanized areas lead to the exposure of more people to pollution, especially from traffic. This causes health problems and even many deaths. The main task in mending this should be to decrease pollutant emissions. However, areas near busy streets and roads will still be with heavy emissions and high pollutant concentrations. Green infrastructures, like street trees and vegetation belts can be used to increase deposition of pollutants and decrease exposure of people to harmful compounds (Beckett et al., 1998). Earlier studies show that species differ in pollution accumulation (Beckett et al., 2000; Sæbø et al., 2012; Popek et al., 2013) and choice of species and designs have been suggested to be important for the improvement of the local air quality (Sæbø et al., 2012). Plant properties may be important for how much of the pollutants that deposit on leaves of different plant species (Dzierżanowski et al., 2011). We quantified accumulation of particulate matter (PM) and metals on leaves of woody species in an urban-rural gradient in two cities, Stavanger in Norway and Warsaw in Poland. The results confirmed that pollution level and plant species were important factors in explaining PM and metal deposition. A positive correlation found between quantity of deposited PM and several of the metals on plant leaves was especially expressed in some of the tested species. The results support the hypothesis that improvement of local air quality, through increase in deposition of pollutants on plants, depends on the careful design, including choice of species, and placement of urban green infrastructure.

Reference:
Beckett KP, Freer-Smith PH, Taylor G. *Urban woodlands: their role in reducing the effects of particulate pollution*. Environ Pollut 1998;99(3):347–60.
Beckett KP, Freer-Smith P, Taylor G. *Effective tree species for local air quality management*. J Arboric 2000;26(1):12–9.
Dzierżanowski K, Popek R, Gawrońska H, Sæbø A, Gawroński SW 2011. *Deposition of particulate matter of different size fractions on leaf surfaces and in waxes of urban forest species.* Int J Phytoremediation 13(10):1037–46.
Popek R., Gawrońska H., Sæbø A., Wrochna M., Gawroński S.W. 2013. *Particulate matter on foliage of 13 woody species: Deposition on surfaces and phytostabilisation in waxes – a 3-year study.* International Journal of Phytoremediation 15 (3): 245-256.
Sæbø A, R Popek, B Nawrot, HM Hanslin, H Gawronska and SW Gawronski, 2012. *Plant species differences in particulate matter accumulation on leaf surfaces.* Science of the Total Environment 427–428 (2012) 347–354

DESCRIBING THE EXISTING CONDITION OF URBAN FORESTS IN THREE ESTONIAN TOWNS

Gloria Niin *Estonian University of Life Sciences, Department of Landscape Architecture*

Key Words : audit, recreation, urban nature

Condition of urban forests, especially from the recreational point of view, has not been researched in Estonian context for many decades. To fill the information gap fieldworks where done from June 2012 to August 2013 covering 3 urban areas: Tallinn, Viljandi and Rakvere. Altogether 79 forest units were visited and graded from 1 to 5 in 9 different categories, covering 32 different aspects. These considered categories and aspects where based on the methodology of environmental audit checklist of Open Space research centre and the Danish method for the mapping of recreational experiences.

When the preliminary results came in, there was a notion that the aspect of nature protection (especially in the case of Tallinn) was not often legible. Meaning, that often in the nature protection areas no real nature protection measures were used and nature in these areas wasn't more unique or in a better state compared to the areas that were not under nature protection. Often these nature protection areas were made just to protect these urban green areas from urban development. For reducing the influence of untrue nature value, aspects of nature protection where taken out. The absolute maximum points for forest area to receive were now 145 and minimum was 29.

In Rakvere there were 6 different forest units located in the south part of the town. Minimum points received were 83 and maximum 103. Forests in Rakvere are big and compact. Recreational possibilities and features are generally missing except in Rakvere Tammik and in Palermo forest. Most of the users are found also in the best scored area – Rakvere Tammik.
In Viljandi there was 16 forest units examined, minimum score was 47 and maximum was 120 points. About half of the forests do not provide any recreational features. The castle hill, what got the biggest score, is one of the most important sights of Viljandi. This is one of the places where the forest setting is in a relatively good state in terms of recreation. In other places the forest is designated for nature and some trails are going along the edge of the forest. This is also due to the fact that they are often located where there are deeper slopes. Due to the topography there is also limited accessibility to the forests.

In Tallinn 47 forests where examined, minimum score was 51 and maximum was 118 points. The location of Tallinn provides diversity in habitats which is why there are many natural and scenic places to be found. At the same time the lack or even absence of management for almost 2 decades creates many problems to these places. For example in some places pine forests have had lot of deciduous undergrowth and this means that the habitat type is changing, views are growing full and the specific character of the area is disappearing. Recreational infrastructure is often from the Soviet time and only in some specific areas positive interventions have taken place. Over exploitation of popular places, the lack of management and absence of control over the users activities have reduced the natural and recreational quality of many urban forest areas in Tallinn.

Notes

PUBLIC PARTICIPATION IN A FOREST RECREATION PLANNING PROCESS IN WARSAW METROPOLITAN AREA

Agata Cieszewska, Renata Giedych, Piotr Wałdykowski *Department of Landscape Architecture, Faculty of Horticulture and Landscape Architecture, Warsaw University of Life Sciences – SGGW, POLAND*
Joanna Adamczyk *Department of Forest Management, Gomatics and Forest Economy, Faculty of Forestry, Warsaw University of Life Sciences – SGGW, POLAND*

Key Words : public preferences, recreation, metropolitan landscape, forest structure, decision support tools

Development plans of forest recreation are parts of forest management plans within public forest in Poland (over 75% of Polish forests). However, still public participation within preparing this kind of documents is rather rare. One of the steps to change this practice was the Recreation Strategy Project for Warsaw Metropolitan Area Forests. The project consists of: inventory of recreation equipment and forest assessment, which then have been used to prepared workshop. The final part of the project was the strategy for future recreation development. Beside public preferences of forest recreation the goal of the workshop was to build relationships between main partners –actors of decision making process - representatives of different levels of Polish Forest Service and users: municipalities, leaders of nongovernment tourist organizations and business. All the actors (46) were divided into 5 teams related to Forest Districts. There were two parts of the workshop: introduction with presentation of contemporary trends in forest recreation in European perspective and team work - round tables discussions to work out proposal for future forest recreation in WMA. The workshop tasks for teams were related to attributes as: (1) forest stand type: variation of trees size within stand from uniform to diverse, tree spacing, species, (2) forest trail type variation from small local path to urban forest road, (3) the way to reach the forest (public, private transport), (4) forest recreation users, (5) form of forest recreation, (6) length of pedestrian and biking forest trails, (7) forests recreation site type and equipment. Teams worked with prepared pictures and charts to make the set questions more communicative. The results made a frame to construct the strategy of forest recreation with compromise between the demands of users and possibilities offered by the he State Forests National Forest Holding.

References:
Edwards D., Jay M., Jensen F.S., Lucas B., Marzano M., Montagné C., Peace A., Weiss G., 2012, P*ublic preferences for structural attributes of forests: Towards a pan-European perspective,* Forest Policy and Economics 19, 12–19
Tahvanainen L., Tyrvaäinen L., Ihalainena M., Vuorela N., Kolehmainen O., 2001, *Forest management and public perceptions - visual versus verbal information,* Landscape and Urban Planning 53, 53-70
Bell S., 2001 *Landscape pattern, perception and visualization in the visual management of forests*, Landscape and Urban Planning, Volume 54, 201-211

USING IMMERSIVE 3D LANDSCAPE SIMULATION TO SUPPORT PARTICIPATORY LANDSCAPE PLANNING: CHALLENGES AND BENEFITS OBSERVED IN COMCOT PROJECT

Peeter Vassiljev, Miguel Villoslada Peciña *Institute of Agricultural and Environmental Sciences, Estonian University of Life Sciences*

Key Words : landscape simulation; landscape planning, facilitation, participation.

Virtual landscape visualisation is an innovative tool with many applications in landscape planning and research. Estonian University of Life Sciences has been using its immersive real time landscape visualization system, besides research, to support local municipalities in dealing with complex planning and visual impact assessment problems. One such initiative was the INTERREG IV A funded COMCOT project ("An Innovative tool for improving the competitiveness of community based tourism"), where the landscape simulator was used to help people understand spatial relations between landscape components and tourism facilities in pilot areas, but more importantly, to provide an engaging platform for discussions about tourism development in those communities.

Initial working plan envisioned the creation of virtual landscapes of pilot areas based on available GIS and visual data. Using the simulator during first round of workshops, members of local communities would be invited to discuss existing and possible future tourism related developments and suggest corrections and amendments to existing landscape models. Updated versions of the landscapes with suggested new tourism facilities would then be discussed again in another round of virtual landscape workshops to produce tourism development plans. Through the course of the project, the use of landscape simulation expanded to take on new additional roles. Besides being a platform to involve communities in the planning process, it was used as an advertisement vehicle to attract public interest and potential investment, a persuasion tool to encourage local council to make a political decision and a dissemination tool for tourism promotion.

Implementation of the project met some organisational and technical challenges too. As workshops were organised by pilot area representatives with different facilitation skills, it was sometimes hard to encourage participation. While some facilitators were actively engaging people in discussions, gaining meaningful feedback even from groups of kindergarten aged children, some other facilitators took on a very passive role. In latter case it was common that people were reluctant to speak their mind or unable to relate to the possible impact of tourism on their community and livelihood. It was discovered that level of visualisation realism and accuracy was also affecting the character of workshops. Discussions on relations and processes in the landscape drifted away towards visualisation quality when higher level of texture detail or obvious spatial inconsistency was shown.

Our experience shows that real-time landscape simulation can support participatory landscape planning but besides reliance on visualisation technology a considerable amount of attention should be given to organisational side of discussion events and skills of the facilitator in particular. The facilitator must be able to stimulate discussions when participants are passive and be able to steer the conversation back to subject matter, while being respectful of a wide range of ideas that may diverge from initial plan of the discussion. Besides using landscape visualisation as a platform for discussions, other motives for using landscape visualisation deriving from community's needs should also be embraced.

MODEL FOR ASSESSMENT OF RECREATIONAL VALUE OF FORESTS IN LATVIA

Janis Donis *LSFRI "Silava", Rigas street 111, Salaspils, Latvia*

Key Words : recreation value, model

For sustainability impact assessment of forestry there is need for quantification of all - ecological, economic and social services of forests. Forest use for recreation is important part of Latvia`s inhabitants lifestyle. Despite general similarities in visual preferences and recreation patterns there could be cultural differences, therefore need for locally adapted recreation value models. Model was elaborated based on principles used by Riepšas, 1992 assessing visual quality, importance of distance to dwelling areas, to watercourses etc.

Visual preferences where assessed based on face-to-face interviews of 1000 people using 45 pictures of different forest development stages (stand level assessment). Each person compared 9 pairs of pictures. Each picture was described by categorical variables - dominant species, development stage, transparency of stand (visibility) etc., as well as quantitative variables – dominant height. Linear regression model was elaborated using categorical variables as dummy variables to describe visual preferences. Use of forests for recreation was assessed by asking distance to forest used in recreation, number of visits per time unit, length of stay etc.). Model was described using exponential relations with distance from dwelling area to forest used for recreation. There were prepared models in ArcGIS software for description of forest recreation value based on stand description in state forest service data base format, DEM, road maps, watercourses and points of residence.

TOWARDS NEW RECREATIONAL FUNCTIONS OF SUBURBAN FORESTS - WARSAW PROMOTIONAL FOREST COMPLEX CASE STUDY

Agata Cieszewska, Renata Giedych, Piotr Wałdykowski *Department of Landscape Architecture, Faculty of Horticulture and Landscape Architecture, Warsaw University of Life Sciences – SGGW, POLAND*
Joanna Adamczyk *Department of Forest Management, Gomatics and Forest Economy, Faculty of Forestry, Warsaw University of Life Sciences – SGGW, POLAND*

Key Words : forest recreation, urbanization

There is an increasing demand for the use of forested areas for recreation, which tends to be concentrated in metropolitan areas. It is not only due to ever-growing interest in healthy lifestyle, but also due to development of new residential areas on the outskirts of cities.

In Warsaw Metropolitan Area new settlements often suffer for lack of recreational areas. The development of new residential areas is not accompanied by the development of urban parks. Existing parks became overloaded and people are looking for new recreational possibilities.

This raises the question of whether traditional forest recreational infrastructure, mainly paths, meet demands of new forest users (mothers with small children, people walking with dogs, older or disabled people).

The aim of the study was to identify forest areas that will be potentially handle daily recreation. In determining the potential changes in recreational use of forests were analyzed: land use changes, especially increasing of residential areas, number and location of green open spaces, distance from residential areas to forests.

The analysis of land use changes was based on archival topographic maps and aerial photographs. Analysis consisted of an area of Warsaw Promotional Forest Complex (FPC).

Analysis of public green areas were based on statistical data. In each of 31 towns located in Warsaw PFC were analyzed: number of parks and the ratio of green areas per inhabitant.

The last study was to identify the accessibility to the border forests from residential areas. Assumed distance 300 meters from the edge of the forest, as the limit for handling everyday recreation.

In result there were determined forest areas, potentially relevant for everyday recreation, where the recreational infrastructure should be enriched with new elements e.g. playgrounds.

The research has been carried out under the grant provided by the Ministry of Environment (project nr 586/10/Wn50/NE-PR-Tx/D)

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IMPROVING BIODIVERSITY AND SOUNDSCAPE IN URBAN GREEN SPACES

Alicia López-Rodriguez *Research Group "Ecology and Landscape", Polytechnic University of Madrid*
Pedro Molina Holgado *Department of Geography, Autonomous University of Madrid*
Ana Belén Berrocal Menarguez *Research Group "Cultural Landscape", Polytechnic University of Madrid*
Isabel Ochoa Soto *Department of Geography, Autonomous University of Madrid*

Key Words : urban green spaces, soundscape, bird songs, biodiversity, public sensitivity

Urban green spaces are key elements for well-being of city dwellers. The number, area and type of these areas are frequently used as an indicator of highest levels of urban quality and citizen's comfort. In some cases, they are also a haven for valuable species and an opportunity to promote people-"nature" interaction.

Bird communities were examined in 9 different types of urban green areas located in Madrid (8) and Guadalajara city (1). Species richness, abundance and community composition was related to site and adjacent landscape features in order to understand which birds occupy these structures and how urban habitat affects them.

The census revealed the presence of species of conservation concern (Oenanthe oenanthe, Galerida cristata) in recently created peri-urban green spaces. Preliminary results indicated that structural complexity and distance to undeveloped areas are the variables most influencing species richness. Regarding the density of high quality songbirds, 3 species were more clearly related to structural complexity: Turdus merula was additionally associated to high shrub/tree cover and irrigated lawns, Parus major to tree age and the presence of nest boxes, and Sylvia atricapilla to green space size.

Some management guidelines can be derived to enhance the quality of soundscape through the promotion of songbirds, to protect the biodiversity and to promote observation of urban nature and citizen participation in wildlife conservation. A new tool to make biodiversity/soundscape management easier and visible to public is presented.

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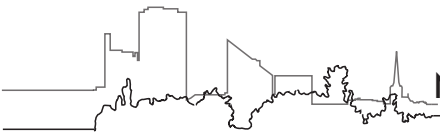


Notes

TREE INVENTORY IN URBAN AREAS

Edgars Neilands

Every time when construction works are planned or public and private space is developed, after big storms, or if the trees have not been surveyed for a longer period, a tree inventory should be carried out in order to separate the good, valuable and perspective trees from the worthless, damaged and potentially hazardous ones. Especially, for valuable trees, or trees in significant locations. This job must be carried out by professional arborists or tree inventory specialists with experience in tree visual assessment. As a result:
a) there is no time wasted in order to maintain worthless or hazardous trees,
b) the money and energy is concentrated to the really valuable ones.

Such an inventory sets the priorities and marks the trees that must be removed (separating the extremely hazardous ones and those that can remain for shorter or longer period), trees that can be either removed or maintained, and the necessary works for each of the trees that should remain. It is highly important to remove the hazardous trees - if such a tree is not removed in time and falls by itself harming somebody or property, it is usually followed cutting down of many trees that are wrongly supposed to be unsafe. The responsibility and consequences of the damage done are carried by the owner of the particular tree, which - in case of public areas - would be the local municipality.

PRESENTATION OF THE MANUAL "HOW TO MANAGE URBAN GREEN AREAS" FOR TARTU, REZEKNE AND PSKOV. GREENMAN PROJECT

Anna-Liisa Unt, Jekaterina Balicka, Liina Jürisoo

The presentation will introduce the audience to the first outcomes of the Manual "How to Manage Urban Green Areas" – one of the outputs of the project GreenMan (full name "Tartu, Rezekne, Pskov: Green Management for Urban Development and Planning in Estonian-Latvian-Russian Border Capitals").

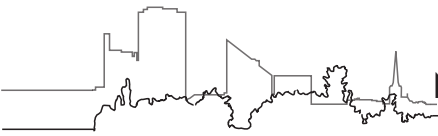
The goal of the Manual is, from one hand, to introduce the wide range of good practice methods in green management inregional context. From the other hand the Manual incorporates and underlines the principle of appropriateness: the method and intensity of maintenance should be adequate to the character of the site, which is maintained. The adequate maintenance methods and intensity should be chosen taking in account numerous factors, like intensity and type of use, the location of the place, its historical, social importance etc. A lot of attention is paid to the alternatives to the lawns in urban periphery, since the significant amount of recourses of municipalities is spent on immoderate maintenance of lawn in the vast and extensively used areas. The Manual provides also the detailed description for good practice in urban trees maintenance, since these are often not fully implemented in every-day practice.

The Manual is aimed primarily for the municipalities of Tartu, Rezekne and Pskov, but target group can be amplified, including other smaller municipalities in the region as well as other organizations and practitioners potentially dealing with urban green management issues

IMPLEMENTING ARCGIS BASED TOOLS FOR URBAN TREE INVENTORY AND MANAGEMENT IN THE GREENMAN PROJECT

Henn Runnel

The presentation will cover the following issues:
- steps taken and challenges ahead of implementing GIS tools for tree inventory among Greenman project partners
- Developing practical tools: customized Arcpad templates for local tree inventory needs, the handbook for users about technical workflows (combining GIS and CAD data and using Arcpad and GNSS devices for tree inventory)
- Hands-on demonstration of using GNSS device with Arcpad for the inventory.



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THE DIVERSITY OF ANCIENT WOODY SPECIES IN URBAN FORESTS

Beata Fornal-Pieniak
Ewa-Zaraś Januszkiewicz
Marcin Ollik
Barbara Żarska
Edyta Rosłon-Szeryńska

Key Words : urban green spaces, soundscape, bird songs, biodiversity, public sensitivity

Urban areas are highly modified and complex landscapes, within which green or open areas are seen as valuable for human well-being as well as wildlife. Many cities have a network of habitat fragments or 'urban greenways' comprising areas of semi-natural habitats, secondary succession, ruderal and pioneer environments and open areas. These habitats may be important features for biodiversity both as stable and as transient and may also be valuable for their possible function as "corridors" and "stepping stones' to facilitate species dispersal In disturbaned landscape urban forest are called relicts of the past in natural aspects and they are often the last places with rare forest plant species. The main aim of the article was characteristic of ancient forest plant species diversity in urban forest in Tarnów city. Ancient forest plant species – plant species which are characteristic for ancient woodland (above 200 year old) and old woodlands (200-100 years old) according to Wulf (2003).

It covered 80 phytosociological records on the area 500 m2 in herb layer of urban forests and in forest nature reserves on oak-hornbeam habitats (160 - total numbers of records). Flora analysis included frequently (in %) of forest species which are called 'ancient plants'. It was observed higher frequently and diversity of plant species in nature reserve (29 species) than in the urban forests (23 species). Native, ancient species for example Anemone nemerosa, Stellaria holostea, Corydalis cava, Anemone ranunculoides are strongly connected with natural habitats. Urban landscape are still modificated by human but rare plant species could be there, too. The results are presented that urban forests with ancient, woody plants are a sort of "green island" with biodiversity of ancient plants in city landscape. Natural patches = urban forests are the main elements of Tarnów ecological structure.

PRINCIPLES OF PARKS AND URBAN FOREST DENDROFLORA WITH PREFERRED FORMS OF RECREATION CONSISTENT WITH THE IDEA OF SUSTAINABLE DEVELOPMENT

Edyta Rosłon-Szeryńska *Faculty of Horticulture, Biotechnology and Landscape Architecture, Warsaw University of Life Sciences*
Ewa-Zaraś Januszkiewicz, Beata Fornal-Pieniak *Department of Environmental Protection, Faculty of Horticulture, Biotechnology and Landscape Architecture, Warsaw University of Life Sciences*

Key Words : hazardous trees assesement, trees' static, park vegetation biodiversity, woodland park management, woodland park undergrowth

In Urban parks, vegetation is managed intentionally, according to people's needs and expectations, but also in a way which is consistent with the concept of environment and biodiversity protection. The most exposed and thus perceptible elements in parks are the woodlands. They strongly determine park's character which is why this paper is devoted to this issue. The edges of woodlands are mostly preferred by park's users, but in case of high temperatures people rather choose woodlands' interior parts. It is worth consideration, which function (recreational, safety or ecological) should decide on planning and management of woodlands. The aim of this study was to answer two scientific questions: 1) are trees growing in the edge of the forest patch more threat to people's safety than trees in the middle of the group and 2) how the ecological value of woodland vegetation changes along with the distance from the edge of the forest patch and what is this vegetation's resistance to trampling.

Examining the statics of trees was conducted using WID-method (visual method of identification of trees threatening people's safety) by ROSŁON-SZERYŃSKA [2006]. Research was held on the basis of two representative samples selected from both left and right valley. The sample in the right valley consisted of 41 trees – 16 trees growing in the edge (exposed only from one side). Second sample consisted of total 35 trees in woodland on the left side, which included 19 trees growing in the edge.

To describe diversity of undergrowth vegetation in woodlands, managed in different ways, 8 transects were selected in intensively managed Skaryszewski Park and 14 in natural unmanaged Natolin Park in Warsaw. On the basis of collected data, indexes of trampling resistance were calculated [KOSTROWICKI 1981]. Naturalness of vegetation in samples was assessed using percentage of plant species of particular synanthropization level [WYSOCKI, SIKORSKI 2009].

Statics examination in trees growing in groups and in exposed locations revealed that shielding from the wind does matter. Trees within the group are more stable than those in the edge. There are prerequisites not to organize rest stops (eg. benches) for safety reasons under trees growing in the edges of woodland patches in parks.

Phytosociological analysis reveals the relationship between biological diversity and intensiveness of management of vegetation within woodlands – the less tramped and more extensively managed undergrowth, the higher its species diversity and density. From the environment protection point of view, people wishing to rest should be directed to forest edges.

THE LEGACY OF THE SOVIET ERA AND FAILED LAND RESTITUTION IN TALLINN URBAN FORESTS

Gloria Niin *Department of Landscape Architecture, Estonian University of Life Sciences,*

Key Words : Estonia, Tallinn, urban forest, land restitution, recreation

From 1940 to 1991 Estonia was part of the Soviet Union and all land was nationalized. During this 50 year period Tallinn, the capital of Estonia, experienced rapid change and growth. New housing districts, factories and military bases where built, while the amount of forest in and around the city expanded, due to the draining of marshes and afforestation of other natural areas. This formed an important resource for recreation, especially for the residents of the new housing areas. In August 20, 1991 Estonia declared its re-independence and land restitution started in November 1st 1991, all the rightful original landowners or their descendants being able to get their land back. However, after 20 years 70 % of urban forests have not yet gone through the land restitution process, meaning that out of 23 km2 of designated forest areas 16.2 km2 of forests remain in a kind of legally "frozen" state with no owners. The state is a temporary owner with no rights to manage or develop the forest and only carried out minimal safety works in the case of, eg. fallen trees, while some more popular forest areas are managed "pro bono" by the local city government. The lack of constant management activities and absence of management plans, monitoring practices and development activities in those derelict urban forests has created urban forests with a particularly run down and wild appearance.

Real examples taken from different urban forests areas in Tallinn illustrates different problems arising from the ongoing unresolved land ownership issue and shows its impact on the urban forest management, ecology, recreation and aesthetics.

The research shows that the legal limbo is affecting the quality of life of the urban residents by the fact that the condition of this sort of natural urban environment does not often meet the recreational needs of nowadays citizens.

THE MOST VALUABLE NON-NATIVE TREES AND SHRUBS IN THE PUBLIC GREEN SPACES OF RĒZEKNE

Pēteris Evarts-Bunders
Gunta Evarte-Bundere
Daina Lakša

Key Words : Rēzekne, non-native taxa, greenery

Rēzekne is seventh biggest city of Latvia by population. The city is situated is located in the Northern descent of Latgale Highland, on banks of river Rēzekne. The lowest point in Rezekne is 130 m above the sea level but the highest point reaches approximately 187 m above the sea level. The total area of city is 1748 hectares. 70% of the city's territory is built up, 13% is green area but 15% - industrial zone.

The public greeneries of Rēzekne are inventoried in years 2012 and 2013 (Park of Rainis, Park at Atbrīvošanas alley, Public garden in Atbrīvošanas alley, greenery of Dārza street, the northern district of the Rēzekne city and especially protected species of trees) in framework of GreenMan Project. There are more than 2000 woody plants determined and measured. There are 19 native taxa (lime trees, oaks, ashes, birches etc.) and 75 non-native taxa found in greeneries, most of them are cultivar of Thuja occidentalis and Juniperus sabina.

The greeneries are enriched with new species in comparison with data obtained during inventory of 70thies of 20th century, for example, there are only two native taxa and 17 non-native taxa found in Atbrīvošanas alley in 1974, but now there are seven native and 18 non-native taxa found here. There are 12 native taxa and 31 introduced taxa registered in greenery of city centre in previous inventory, but now there are 18 native and 71 introduced taxa (Bice at. al. 2005). The number of taxa is raised by planting of modern dwarf cultivar of conifers, several varieties of Spiraea and Pentaphylloides fruticosa. The most valuable non-native woody plant taxa considered by authors are: Betula alleghaniensis, Juglans ailanthifolia, Phellodendron amurense. These taxa should be considered as valuable and rare non-native taxa and could be protected in scope of the city. The most valuable greenery of the city is located near the Rēzekne State Regional Forest District.

Estonia-Latvia-Russia cross border cooperation Programme within European Neighborhood and Partnership instrument 2007-2013 Project „Tartu, Rezekne, Pskov: Green Management for Urban Development and Planning in EE-LV-RU Border Area"/"GreenMan".

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DEVELOPMENT AND PROBLEMS OF URBAN FORESTRY IN POLAND

Roman Jaszczak, Sandra Wajchman *Department of Forest Management,Poznan University of Life Sciences*

Key Words : Poland, urban forestry, history, legal basis

Forests, in the early middle ages, were the property of clergy and feudal landlords. Their main function was to ensure hunting and recreational grounds and to supply their owners with timber raw material. Initially, they were natural forests which, with the passage of time, were replaced by forests, parks and gardens planted by man. However, together with the development of bourgeoisie and growing strength of their influence municipal forests accessible to the general public began to appear and they fulfilled both production and recreational functions. Since the second half of the 19th century, municipal authorities began to take over the care over forests in towns so that by the beginning of the 20th century, the majority of forests situated within administrative boundaries of large towns were managed by them. After the Second World War, municipal forests were nationalised and a central body to supervise them in the Ministry of Administration and Communal Administration in Warsaw was established which, later on, was closed down. Currently forest economy in urban forests is supervised by municipal forest districts, offices of district authorities, communes, municipal greenery enterprises, municipal road boards as well as other organisational units.

Due to proximity of forests situated within the range of influence of towns, their numerous non-productive functions are dominant and timber production is of marginal significance.

Among the most sensitive problems facing municipal forests in Poland are: lack of appropriate legislation regarding forest management and powers of forest services as well as inability to acquire financial support from the forest fund which could be used for natural education and touristic development.

DETECTING LANDSCAPE ECOLOGICAL AESTHETICS N URBAN GREEN SPACES

Maija Jankevica *Latvia University of Agriculture*

Key Words : landscape architecture, urban ecosystems, urban planning

Nowadays, there is a search for improvement of the current urban landscape using principles of landscape ecological aesthetics (Gobster et al. 2007). The aim of research was to assess landscape ecological aesthetics of green spaces in four Latvian cities. The defined main tasks were to manage landscape inventory in 32 green spaces, to assess landscape ecological and aesthetical values using evaluation matrix and to compare existing condition of green spaces in selected Latvian cities.

There were different types of public green spaces surveyed. After the inventory selected green spaces were evaluated according to the assessment matrix (Jankevica 2013). Twelve criteria were chosen for the assessment of landscape ecological and aesthetical values. Aesthetics included order, quality of man-made elements, visible human intention, particularity, use of outlandish plant species, accordance with architecture. Ecology was characterized by biodiversity, accordance with region, native species dominance, naturalness, presence of wildlife, wilderness.

Green spaces with high aesthetical values were different squares and plazas with recent improvements and limited ecological values. Green spaces with high ecological values were abandoned parks which are left for unaffected nature processes. Green areas with Soviet period design were under the average of ecological and aesthetical values due to their outdated and non-functional design. Balanced areas with high level of both values were detected in green spaces with regular maintenance system which has been running from a historic time.

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Notes

LIMBWALKERS: NARRATIVES OF LANGUAGE, LABOUR, AGENCY AND LEARNING IN URBAN FORESTRY

Adrina Bardekjian *MFC, PhD Candidate Faculty of Environmental Studies, York University*

Key Words : arborists, narratives, perspectives, political ecology, social inclusion

Urban forestry contains dominant and hegemonic stories that are seen as the normal in the management of urban trees. However, there are also marginal and under-represented stories relating to the language use, labour processes, the agency of trees, and the educational norms of the profession and practice.

This suggests that urban forestry can become a more socially and ecologically integrated field by examining and taking into account the under-represented stories within this field. Using a political ecology lens, my research examines how communicating underrepresented narratives in urban forestry, using arboriculture, can inform a more socially inclusive urban forest integration and how examining the consumption of urban forests through the eyes and experiences of field arborists, can influence the future of urban forest practice. My methodology centered on theoretical reflection, primary and secondary research, and a series of semi-structured interviews, participant observation and site-visits with field arborists and urban foresters in Southern Ontario. Using discourse analysis, ethnography and narrative, I explored how arborists are represented in language; I examined arborist working activities and relationships with co-workers; I examined how arborists negotiate the urban forest, physically and emotionally as a place of work; and I explored how arborists feel about their education retrospectively, and reviewed current curriculum for college and university level urban forestry and arboriculture programs. Results from interviews revealed that: i) Current language and use of metaphors surrounding field arborists and tree care workers, in Southern Ontario, perpetuate negative perceptions of arborists, by others and by themselves; ii) The existing political climate surrounding urban forestry operations in Southern Ontario is scalar, unequal and gendered; iii) Arborists' proximity to urban trees creates a unique relationship with the urban forest, both physically and emotionally; and, iv) The lack of standardization for a comprehensive and inclusive urban forestry education creates knowledge imbalances that can lead to unsafe environments for both trees and people. Findings suggest that re-imagining urban forestry practice and communication in Southern Ontario can influence its praxis towards more sustainable, ethical and transdisciplinary directions.

DECOUPLING CEREMONY AND TERRITORY- A PROPOSAL FOR URBAN WOODLAND BURIAL AS PERFORMATIVE INFRASTRUCTURE

Ann Sharrock
Ian Fisher

Key Words : landscape architecture, urban ecosystems, urban planning

There is the potential for a unique confluence of opposing thought between the non-secular attitudes to burial and the scientific secularism in the creation of healthy and liveable cities.

Burial sites reflect ancient traditions, which are culturally loaded with a mixture of fear and respect for death. This results in artificially manicured and maintained sites that remove the culture of death from daily life and are zoned to the peri urban fringe. Many of these working burial sites are now close to full capacity.

In cities, where land values and access to open space are at a premium there is a need to maximise the performance of land and introduce adaptive strategies as a more dynamic approach to creating sustainable urbanism.

Within the UK Green Infrastructure typography, cemeteries and graveyards are seen as assets in supporting sustainable cities. In reality their location, accessibility and potential multi-use are undervalued in this context and therefore judgements about their “landscape” performance are compromised by the privilege of non-secularity.

This paper proposes separating the non-secular ceremony of burial from its territorialisation of the ground plane in time and space, in order to liberate land as a staging for biocentric systems, which would act as a means of synthesis for anthropocentric activities. The model that is being proposed is based on the concept of woodland burial, which, would act as an adaptive piece of green infrastructure that could create the setting for the ceremony of burial, but equally act as a network of interconnected ecologies, measured by their performance in contributing to a more healthy city.

Within urban areas there are a large number of temporal un-programmed spaces that are principally privately owned, awaiting development. This paper examines how managed woodland could occupy these spaces, creating local burial sites that through their association would generate respect and responsibility, providing secular centres of escape and contemplation and community focus. As biocentric mediators they would absorb pollution, reduce the urban heat island effect, create resilient habitats and manage storm water run off. As economic assets they would provide biomass for local use and returns, either through the way that future tax revenues are apportioned or through private investment.

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LISBON'S HISTORIC GARDENS, A HOST PLACE FOR THE WORLD'S TREES

Ana Luísa Soares, Sónia Talhé Azambuja , Isabel Silva, Francisco Moreira *Centro de Ecologia Aplicada Professor Baeta Neves, Instituto Superior de Agronomia, Universidade Técnica de Lisboa*
Teresa Vasconcelos, *Paulo Forte* *Instituto Superior de Agronomia, Universidade Técnica de Lisboa*

Key Words : public Gardens, heritage interest, urban forest richness

Within the framework of the project "LX GARDENS - Lisbon's Historic Gardens and Parks: Study and Landscape Heritage Inventory" (financed by FCT: PTDC/EAT-EAT/110826/2009) an historical, artistic and botanical study of the Lisbon's Public Gardens (from the 18th century up to the 1960's) is being done.

This study aims to examine further the historic and aesthetic benefits, which will allow 60 Lisbon's gardens to be classified as part of the city's Cultural Heritage (contribute to its legal classification) and thus provide Lisbon with a "product" that has strong tourist potential, enhancing, disseminating and promoting cultural tourism.

In the characterization and evaluation of Lisbon's Public Gardens a new methodology is being developed to measure their landscape, historical, social and cultural value, according to each garden's distinctiveness, its heritage importance and its use as a public space.

The botanical study of the gardens in question include tree surveys, in which every tree of each garden is identified (species, description and special characteristics) and placed on a map with GIS localization tools.

Garden's Landscape value is evaluated according to several parameters, one of which is the botanical quality indicator. It determines trees' richness and uniqueness, assessed by botanical diversity and singularity evaluation methods (e.g., surveys, Shannon index, Equitability), and trees' heritage interest, based on their rarity, age, size and health.

So far 14038 trees in 47 gardens were studied. The following results were obtained: 67 families, 112 genus and 226 species. 58% of the trees were evergreen and 42% deciduous. 48% of the species were exotic, 35% introduced, 13% native and 4% invasive.

Lisbon's Mediterranean climate allows the coexistence of different tree species, from Northern Europe to subtropical climates. In addition to its aesthetical value, this botanical diversity plays a central role in increasing biodiversity and promoting urban ecological sustainability.

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FROM ABANDONED BOTANICAL GARDEN TO URBAN BOTANIC FOREST: AN EXPERIMENT IN LIÈGE (BELGIUM)

Catherine SZANTO *landscape architect trained in the United States and in France, presently on a research fellowship in the Faculty of Architecture at the Université de Liège (Belgium).*
Nadejda ECHIKH *biologist, director of the Espaces Botaniques at the Université de Liège (Belgium).*
Rita OCCHIUTO *is an architect and professor of Landscape Architecture at the Faculty of Architecture at the Université de Liège (Belgium) and director of the laboratory "Ville, territoire et paysage".*

Key Words : Liège,landscape, botanical garden, "landscape laboratory"

The University of Liège always had a botanical garden for research and teaching, but during its 200 years of history, it was moved several times. It is now located in the new university campus of Sart-Tilman, built on a wooded hill in the outskirts of the city. Developed in relation with botanical research in the 1970s and 1980s, it was abandoned 25 years ago due to decrease in the research programs. Today, it is an overgrown wooded area merged into the surrounding woodland.

In 2008 the University created a new institution – Espaces Botaniques de l'Université de Liège – whose goal is to bring back the botanical value of the different plant collections, including the tree collection of the botanical garden. The question here is to transform a woodland containing botanical species into a multi-use urban forest with botanical value, in relation with both the university and the surrounding communities. As a site for teaching and research, it should showcase individual species and biotopes, and offer opportunities for scientific study and design experiments. As an urban forest, it should offer recreational opportunities for residents while encouraging curiosity about plants, and more generally about the landscape.

The regeneration of the botanical garden is an opportunity to develop a dynamic management strategy combining traditional and design approaches, inspired by the Landscape Laboratory at SLU-Alnarp. The site is considered as an experimental 'in situ' design laboratory where there is no distinction between management and design. The process is responsive to the site-specific dynamics and offers the possibility for an ongoing dialogue between theoretical and embodied knowledge, between designers, managers, researchers and users of the garden.

The aim of this paper is to present the issues at stake and the first stages of this experiment.

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URBAN ACUPUNCTURE – THE BIG EFFECT OF SMALL SPATIAL CHANGES ON THE BEHAVIOUR PATTERNS OF THE USERS OF AN URBAN WASTELAND

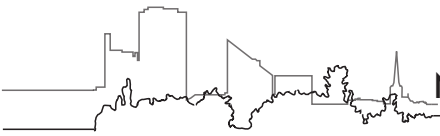
Anna-Liisa Unt *Department of Landscape Architecture, Estonian University of Life Sciences.*

Key Words : behaviour mapping, spatial change, Tallinn waterfront, urban acupuncture, urban derelict places.

This example presents an urban wasteland as an important part of a city's green network. Officially deserted and ruined open spaces provide an environment for biological, functional and social diversity. This example examines how such a space is used and how small spatial improvements – urban acupuncture – affect the activities carried out by the users. Urban acupuncture is a practice of making small targeted adjustments in order to solve a specific larger problem. Activities carried out at correctly chosen hotspots begin to drive the overall urban development.

The fishing harbour site in Tallinn provided a great opportunity to test this effect – it is a former industrial territory that has been virtually untouched for decades, acting as an unregulated environment where more or less alternative urban practices could occur. Lately, a series of spatial installations and community-led improvements have been taking place, creating an opportunity to compare user behaviour at different times and settings. Behaviour mapping and field observations were used for seeking behaviour patterns before and after small design interventions and studying the influence of very small changes on the usability of the place and also their possible wider impact.

When comparing the composite behaviour maps of both arrangements, the results show that unregulated space can successfully function as an attractive outdoor environment and green space does not need to be built to be a park or a playground. An even increased number of users and a different pattern appears after the changes – showing that users follow the properties that an environment affords. The results also demonstrate that major positive effects can be achieved with small, inexpensive and even temporary spatial interventions.



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URBAN FORESTRY OR FOREST URBANISM?

Wim Wambecq *MFC, OSA researcher - PhD Student*
KU Leuven - Department of architecture, Urbanism and Planning

Key Words : forest urbanism, Landscape Urbanism, Territory of dispersion, Belgium

Since the urban planning law of 1962 Belgian spatial development is regulated by systematic and strict (and rather detailed) land use plans. These organize the horizontal juxtaposition of functions. Forest is one of these 'land uses'. As a consequence, the forests are being pushed inside its land-use boundary. Each tree within a forest zone is carefully considered, planned and managed and seems increasingly less compatible with urbanization that paradoxically sprouts organically on almost any given location, even outside their land-use destination.

It is generally accepted by now that this zoning is outdated and that planning should rather facilitate vertical superposition. In the compact city this is referred to as 'mixity' and it increasingly requires interdisciplinarity inputs that are not bounded to a sole area of expertise. This presentation, by urban designers, aims to contribute to bridging the disciplines of urbanism and forestry.

It is evident that the monofunctional specialization of space in the end leads to a loss of ecological systems and biodiversity. It will be argued in the presentation that it also leads to a loss of quality in a lot of dwelling environments and other urbanized areas. In this presentation we especially want to highlight the quality of dwelling environments that are embedded in a forest or vice versa that constitute with their large gardens with full-grown trees a zero degree of forest. Coexistence of urbanization and forestry indeed generates interesting 'intermediate' territorial forms and figures. Through a case study in the transition between three different Belgian landscapes - Dijleland, Hageland and Zuiderkempen meeting in the municipality of Rotselaar - it becomes clear how forest overlaps with dispersed urbanization.

Over the years Rotselaar has known a great shift in its forest stock. The location and quality of the forest is highly dependent on the topography and soil conditions: loamy soils are mainly used for agricultural purposes, while the lower clay and higher sandy soils were gradually forested with deciduous - read Populus - and coniferous species - mainly the normal pine. At the same time these landscape conditions also lead to different urbanization forms, indirectly creating a link between forest and urban, but not evident and far from optimized.

By acknowledging the necessity for a stronger relation, it leads to new urban design tools and intermediate structure; where the tree and the house have equal volume; where both ecological system and urban structure seem lost; and finally where forestry and urbanism as disciplines merge into forest urbanism, or was this urban forestry?

URBAN FORESTRY – AN 'ARCHITECTURE OF URBAN FUTURES'

Alan Simson *Reader in Landscape Architecture + Urban Forestry Director of Research for Art, Architecture + Design*
Leeds Metropolitan University

Key Words : urban forestry, compact city, integrated infrastructure, adaptive urbanism, resilience.

The 21st century is the century of the city. The world is continuing to urbanise at an increasing and some say alarming rate, and although there is still pressure to continue to develop the concept of the 'sustainable compact city' [eg. Bentham J, The New Statesman 16 April 2013], it is only relatively recently that there has been an attempt to define what a compact city really is [eg. Galster et al 2001]. However, there is now an increasing amount of research that suggests that such cities may not be as 'sustainable' as they are claimed to be [eg. Neuman, M 2005] and, as a result, the concept of 'urban green infrastructure' is rapidly gaining ground throughout Europe [eg. EU Communication 06.05.2013], as the benefits that accrue from such an approach to urbanism have been able to be quantified and evaluated economically, socially, culturally and environmentally.

Urban Forestry is an acknowledged trans-disciplinary activity, and this illustrated presentation will discuss some of the significant contemporary research that is taking place into both the actual and the potential contribution that urban forestry is making to new urban thinking, how urban forestry can be accommodated within the evolving concepts of 'adaptive urbanism' and 'resilient urbanism' and will promoted the view that urban forestry has the acumen to meld the urban 'critical infrastructure' [ie. energy, food, water, transport, etc] with the emerging 'green infrastructure [ie. ecological security, multi-functional green spaces, etc.] into a viable Integrated Infrastructure, and thus urban forestry is on the threshold of being recognised as one of the fundamental 'architectures of urban futures'.

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URBAN FOREST GOVERNANCE IN THE CITY OF ZAGREB

Silvija Krajter Ostoić *Croatian Forest Research Institute, Department of forest management and forestry economics,*
Cecil C. Konijnendijk *Division of Landscape Architecture and Planning, Institute of Geosciences and Natural Resource Management, Faculty of Science, University of Copenhagen*
Bas Arts *Wageningen University, Forest and Nature Conservation Policy*
Ivan Martinić , Dijana Vuletić *Faculty of Forestry, University of Zagreb*

Key Words : governance, policy arrangement approach, in-depth interviews, governance performance

Urban forests and green space play an important role in making sustainable and resilient cities providing quality environment for its residents. Still, urban forests and green space are not necessarily highly positioned on the political agenda especially in comparison to development possibilities. On one side importance of urban forest governance has been highlighted, especially in context of new approaches such as green infrastructure, while on the other side there is not so much comprehensive research dealing with it. The aim of the presentation is to describe and assess urban forest governance in the City of Zagreb from the stakeholders' perspective. As a capital of the Republic of Croatia the City of Zagreb shared conundrums of the post-socialist country in transition. In this research performative governance capacity is assessed based on in-depth interviews with various stakeholders. The aim of the interviews was to find out how stakeholders perceive current urban forest governance in the City of Zagreb and what needs to be improved in their opinion. For that purpose framework for governance assessment was developed based on the elements of the Policy Arrangement Approach (Arts et al., 2006), namely discourses, actors, rules and resources, as well as governance and discourse theory. In the end it will be discussed whether current urban forest governance in the City of Zagreb works or not and some recommendations for its improvement will be suggested. Zagreb case will be also put in the international context.

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RECONNECTING URBANISATIONS: TRANSITIONAL LANDSCAPES AND SERVICE INFRASTRUCTURES

Richard LeBrasseur

Key Words : spatial planning, socio-ecological systems, ecological urbanism, sustainable development, ecosystem services

Transitional land uses produced through urbanisation continue to fragment green infrastructural landscapes across the European Union (EU) as contemporary society's requirements upon resources intensify and the impacts to human and ecological health persist.

Urban spatial planning practices must evolve and adapt to support an integrated approach towards green infrastructure to solve the complex sociological and ecological concerns (Berkes et al., 2003) resultant from the inconstant socio-economic and socio-cultural pressures driving human activities. As interrelated systems thinking has increased within the discipline of spatial planning and urbanism ideologies, so too has the need for improved theory and concepts.

The paper posits an expanded definition of ecological urbanism, one that synthesises social-based and ecological-based systems. In doing so, the service and application of interconnected landscape systems at a civic or municipal scale attenuate negative impacts, improve performance, and enhance quality of life. Ecological urbanism in this context is a comprehensive spatial planning strategy that recognizes the significance of landscape integrity, sustainable development, and comprehensive ecosystem services.

The connectivity and performance of landscapes, whether built or natural, are key concepts that make the ecological urbanism approach an important part of spatial planning in the liminal urbanisations of the EU, particularly when the definition of ecosystem services is continually expanding (Carpenter and Folke, 2006) and theories of resilience persist.

This paper encourages a logic that respects socio-ecological relationships and the numerous and diverse benefits they provide (e.g., de Groot et al., 2002; Benedict and McMahon, 2002) through a historical overview, contextual definitions, planning paradigm analyses, and critical review. Continued exploration, analysis, and discourse is needed to better understand how landscape and urbanisation mutually affect one another in terms of spatial patterns and ecological processes including quality of life; this presentation adds to the increasing mix of planning ideology and is a step towards needed coalescence.

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APPLYING SOCIAL SUSTAINABILITY CRITERIA IN PUBLIC OPEN SPACES

Friedrich Kuhlmann, *Estonian University of Life Sciences, Institute of Agricultural und Environmental Sciences, Department of Landscape Architecture*

Key Words : Community Awareness, Long-Life-Learning, Landscape Architecture, Social sustainability

This paper presents one part of a recent research project where landscape architecture is involved in, although it seems the theme could well go along without our assistance as a designing trade. Stating this does not mean that its mayor topic 'public space' is not connected to our profession – it well is – but compiling a list on sustainability criteria or creating a so-called serious web-based game on sustainability gets the main input from our profession in a subcutaneous manner.

The presented project with its focus on games and sustainability shows how the boundaries of Landscape Architecture are widening when the issue of social sustainability is raised: Auditing the Sustainability of Public Spaces (ASPIS) was a European research project, running from 2009 to 2012, co-funded by the Lifelong Learning Program. The project aimed to enable the dialogue between urban citizens and planners, with a focus on the sustainability of public spaces. Within this context the project was promoting public participation in urban planning and also making citizens and planners more aware of the need to design and maintain sustainable open spaces. ASPIS focused on theses aims by stimulating dialogue through education in schools, universities and education for professionals and public. Furthermore by stimulating dialogue between all those who have a "stake" in planning and open spaces, such as users, planners, politicians or community groups. The long-term-aims included an improvement of governance at local level through public participation, the empowerment of urban inhabitants to influence shape and use of their environment and finally making learning more challenging and relevant to real life situations based on "game-based learning".

Nowadays, the notion 'sustainability' seems obvious and in some ways further research on its necessity outdated. Thus, as environmental, economic and social sustainability are forming the three pillars of sustainability the social aspect was always seen as less important since it is more negotiated than measured. In the scope of social sustainability the community provides social cohesion inside and outside of community as well as it cares for a good quality of life for a community. Its criteria therefore include issues like community, diversity, employee relations, product safety, reporting, and governance. These criteria formed the basis for building the serious-game content as well as it helps to evaluate public spaces.
Landscape architects deal in a zone of connectivity between different subjects, using these connections to unfold potentials in projects, which are not necessarily of technical or ecological origin. In the case of the sustainability criteria list, landscape architecture is unfolding potentials of community awareness, which in the end may not be connected to a concrete project anymore, but to the awareness on community life. When the issue of community awareness is raised one usually thinks of a purely people-to-people involved process adopting strategies of social work. Nevertheless, community awareness is also connected to a new perception on the surrounding environment or just being proud of an innovative element in the neighbourhood park. This aspect is not directly measurable, but has quite an impact on the creation of a neighbourhood community. In this way the community awareness on

sustainability can enhance neighbourhood pride created from relations between the people or a different way of producing.

The German philosopher Wolfgang Welsch states we might describe ourselves as 'welteinheimische Wesen' (lit: world-indigenous creatures) meaning we as humans are completely interwoven into our environment, leaving behind dichotomies of man vs. things. Thus, this notion does not call for a back-to-nature or in reverse technological utopia, but helps us to look on actions connected to planning, design or construction. This relationship is found in tools for community work and social issues, like the Irish information system www.airo.ie where data displaying the social layout of Ireland is mapped down to a neighbourhood level, enabling focused social work, but likewise as misuse by real-estate companies. It can be discovered in the value of a mobile virtual landscape theatre for simulating a future impact into a landscape and discussing this case with the affected public. It can finally be discovered in a star rating-tool which enhances the social sustainability in the way of placing an interface between an area and its user.

Acknowledgement
Auditing the Sustainability of Public Spaces (ASPIS) was co-financed by the Lifelong Learning Program (LLP) - Education, Audiovisual and Culture Executive Agency (EACEA) and the nine involved European partners.

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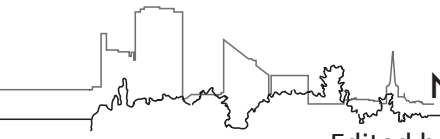

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