Integrating multiple societal demands into urban forestry for the future: the case of Munich (Germany)

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Introduction

Socio-cultural ecosystem services (ES) like aesthetic enjoyment or suitability for outdoor recreation activities are considered to be extremely important in urban forests (Tyrväinen et al. 2005). Adaptive management strategies strive to secure important provisioning (e.g. timber) and regulating (e.g. filtration, lowering temperatures) ecosystem services (ES). Consequences of these management actions like conversion of conifer stands towards structured multilayer stands containing different broadleaf and conifer species might have effects on these socio-cultural ES.

Also, the demand for socio-cultural ES might change. While urban population still increases, at the same time, demographic change leads to a higher share of older citizens. Moreover, a diversification of lifestyles with their corresponding attitudes, values and communication channels is expected. Finally, the share of persons with a migration background increases. Using the case of urban proximate forests in Munich, a number of key questions arise:

- What are current recreation patterns in urban forests and do different groups have different demands?
- Does adaptive management of forest stands affect perceived scenic attractiveness and the quality of recreation?
- How can different groups of society better participate in forest recreation? Which barriers exist?
- How can forest authorities react to these demands?

Methods

A set of different studies is carried out. First, urban proximate forest recreation patterns, forest preferences, and recreation demands are assessed (Weitmann and Korny 2014) and results are compared with studies dating back in the 1980ies (Ammer et al. 1982 and Lindenau 1996) and inter-area comparisons of different forest types (spruce dominated forests in the south of Munich with pine and broadleaf dominated ones in the north). Forest landscape perception and preferences are assessed and compared using lifestyle concepts (Lupp and Konold 2008). Special focus is drawn to assess demands and preferences of persons with migration background. Finally, participatory scenario work using methods described by Syrbe et al. (2013) and Starick et al (in print) with urban forest stakeholders are developed considering different driving factors, resulting management strategies and impacts on socio-cultural ES.

Results

First results indicate that uses diversified in the past decades. Larger different user groups in urban proximate forests are dog walkers, hikers/strollers, Nordic walkers, joggers, and bikers with own distinct user patterns and distribution across the forests. Also traveling patterns for accessing urban

forests have changed. Access by bike has increased from 33% in 1979 to 50.1% in 1995 and 58.3% in 2013, while the share of car use has dropped from 53% to 30.5% in 1995 and 24.1% in 2013. Biking is nowadays the most important recreation activity with 72.7% (42.3% in 1979), while taking a walk/hiking has dropped from 68.5% to 53.7% in the past 35 years. Picnicking dropped from 29.9% to 18.9% between 1979 and 2013. Also a shift towards older groups of society can be observed. While around 20.6% of the interviewed visitors were over 46 years old in 1979, and 35% in 1995, this group already formed 55.1% in 2013. Visitors in the riparian forests preferred old poplar stands as well as noble broadleaf forest types.

Key driving factors influencing the future development of the urban proximate forests identified in an expert workshop are: climate change, demand for wood, increased demand for wood used for energy purposes, increased outdoor recreation and diversifying activities, increased concern for forest protection, increased use of information but at the same time decreasing knowledge about forest ecosystems and their use, demographic change. These driving forces were bundled to develop three stringent forest management scenarios: “Multifunctional”, “Urban Park” and “Wood production”.

Discussion

The increased bike use for both access and recreation is surprisingly high also in comparison with other cities and first results from other urban proximate forests in Munich. A shift to preferences of mixed and broadleaf forests can be seen also in other studies (e.g. Lupp and Konold 2008) and reflects lifestyle changes with respective mobility patterns and aesthetic preferences.

Further work

In the next steps, these scenarios will be analysed. A core issue will be the socio-cultural ES suitability of these forests for outdoor recreation and aesthetic enjoyment. Nevertheless, simple analyses considering also other ES shall be carried out.

Authorities managing urban forests will have to reflect their communication channels to address recreationists and management towards climate change. While forest management seems to be necessary to provide preferred forest stands, management activities like harvesting are not.

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References

Ammer, U., Pohlmann, A. and Weber, G. (1982) Untersuchungen zur Erholungs- und Waldpflegeplanung in den Isarauen. München.

Lindenau, G. (1996) Die Erholungseignung des Auwaldes, dargestellt am Beispiel der Isaraue zwischen München und Freising. Diploma thesis.

Lupp, G. and Konold, W. (2008) Landscape preferences and perception of both residents and tourists: A case study in the Müritz National Park (Germany). In: Siegrist D, Clivaz C, Hunziker M, Iten S (ed.) Visitor Management in Nature-based Tourism – Strategies and Success Factors for Parks and Recreational Areas, Series of the Institute for Landscape and Open Space. HSR University of Applied Sciences Rapperswil 2, Rapperswil, pp. 47–58.

Starick, A., Syrbe, R.U., Lupp, G., Matzdorf, B. and Zander, P. (in print, available online) Scenarios of bioenergy provision - technological developments in a landscape context and their social effects. Environment, Development and Sustainability.

Tyrväinen, L., Pauleit, S., Seeland, K. and de Vries, S. (2005) Benefits and uses of urban forests and trees: A European perspective. In: Konijnendijk CC, Nilsson K, Randrup TB, Schipperijn J (ed.) Urban Forests and Trees in Europe – A Reference Book, Heidelberg, Springer, pp. 81-114.

Weitmann, V., Korny, D. (2014) Die Erholungseignung des Auwaldes – Untersuchung der Besucher-Aktivitäten und Bewertung von unterschiedlichen Waldbildern in den Isar-Auwäldern nördlich von München - Project report, 71 p. + supplements