



EMoNFUr – LIFE+

Spremljanje stanja urbanih gozdov — projektna delavnica  
Monitoring of urban forests — project workshop



## ECONOMIC VALUATION OF URBAN FOREST'S ECOSYSTEM SERVICES

Anže JAPELJ, Slovenian Forestry Institute, E:anze.japelj@gozdis.si

Forests provide a variety of services from which society benefits. These can be categorised in four groups of **ecosystem services** (MEA 2005):

- *provisioning services* – wood, food, water resources, fibres, fuel etc.,
- *regulation services* – mitigation of floods, regulation of climate, etc.,
- *cultural services* – aesthetic values, education opportunities, spiritual values, etc.,
- *supporting services* – nutrient cycle, formation of soil, primary production, etc.

Urban forests are ones that are close to or confined by human settlements and are an inevitable part of human lives. The focus of their importance is placed on cultural and regulation group of ecosystem services, but they also provide society with others.

Often urban forests are to provide a larger set of services thus their role is more complex than in the case of forests managed only for wood production with only minimum safety standards to maintain biodiversity at a specified level. Complexity arises also from their different use-value typology (BATEMAN et al. 2002).

- **use value,**
- **non-use value.**



When making decisions on how to sustainably manage urban forests three pillars of sustainability should be taken into account; **social, economic and ecological**. Effects of management alternatives on social wellbeing should be assessed from the viewpoint of each of three perspectives (BARBIER et al. 1994, FARBER and BRADLEY 1999), as availability of ecosystem services contributes to all of them. That is why assessing **demand for ecosystem services** is needed. Data on peoples' preferences towards ecosystem services

Such judgements can be carried out with tools such as **Cost-Benefit analysis, Cost-effectiveness analysis** and **Multi-criteria analysis**. What all three have in common is that they compare gains and losses of different decisions and they can all be used in environmental context. CBA as the most popular in this area demands gains and losses to be stated in monetary terms. In the case of ecosystem services, for which markets and consequentially prices do not exist, a decision maker has to resort to groups of economic tools that can provide monetary value estimates of such services or goods. Those are also methods of **Revealed preferences (RP)** and methods of **Stated preferences (SP)**. When trying to obtain non-use values, the latter group is the only option.

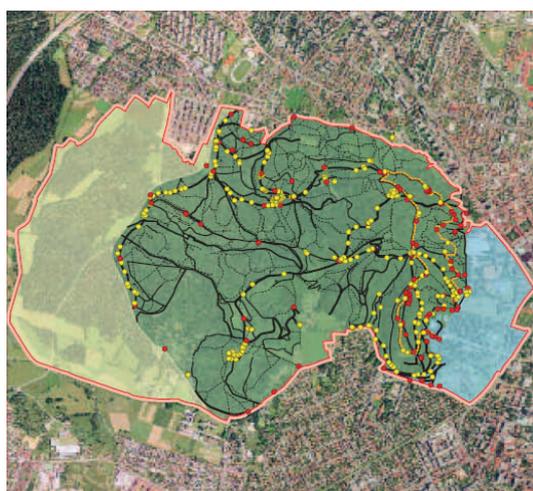
## ECONOMIC VALUATION OF URBAN FOREST'S ECOSYSTEM SERVICES

SP methods are survey-based techniques for eliciting, directly or indirectly, individual's money valuations of costs and benefits for different alternatives (example, management policies for urban forests). Such valuations provide measures of **Willingness-to-pay** or **Willingness-to-accept**.

Alternatives in question are presented with attributes or characteristics that best describe those alternative scenarios of forest development; and levels of those attributes, that is values attributes would take under different scenarios. An example of one such attribute (vertical stand structure) and its two levels (un-even-aged, even-aged) (figure bellow).



### PROPOSED METHODOLOGY OF MONITORING OF URBAN FOREST—RECREATION



Ehalič et al. 2011 (ZRC SAZU)



METHOD	SP- CHOICE MODELLING TECHNIQUE
ATTRIBUTES*	<ul style="list-style-type: none"> <li>• big/old trees near walking paths</li> <li>• abundance of clear patches</li> <li>• length of maintained walking paths / n. of people you encounter on your way</li> </ul>
HOW TO ADMINISTER IT	FACE-TO-FACE INTERVIEWS
WHERE	ENTRANCE POINTS
FREQUENCY	APP. EVERY 5 YEARS

\* results of an internet survey, carried out among general public (N=108) and two focus groups of experts, both carried out this year.

**References:** Bateman I. et al. 2002. Economic valuation with stated preference techniques. Edward Elgar: 458 p.

Barbier E. B., Burgess J. C., Folke C. 1994. Paradise lost? The ecological economics of biodiversity. London, Earthscan: 290 p.

Farber S., Bradley D. 1999. Ecological and resource economics as ecosystem management tools. V: Ecological stewardship – a common reference for ecosystem management – Volume III. Sexton W. T., Malk A. J., Szaro R. C., Johnson N. C. (ur.). Oxford, Elsevier Science Ltd.: 761 p.