



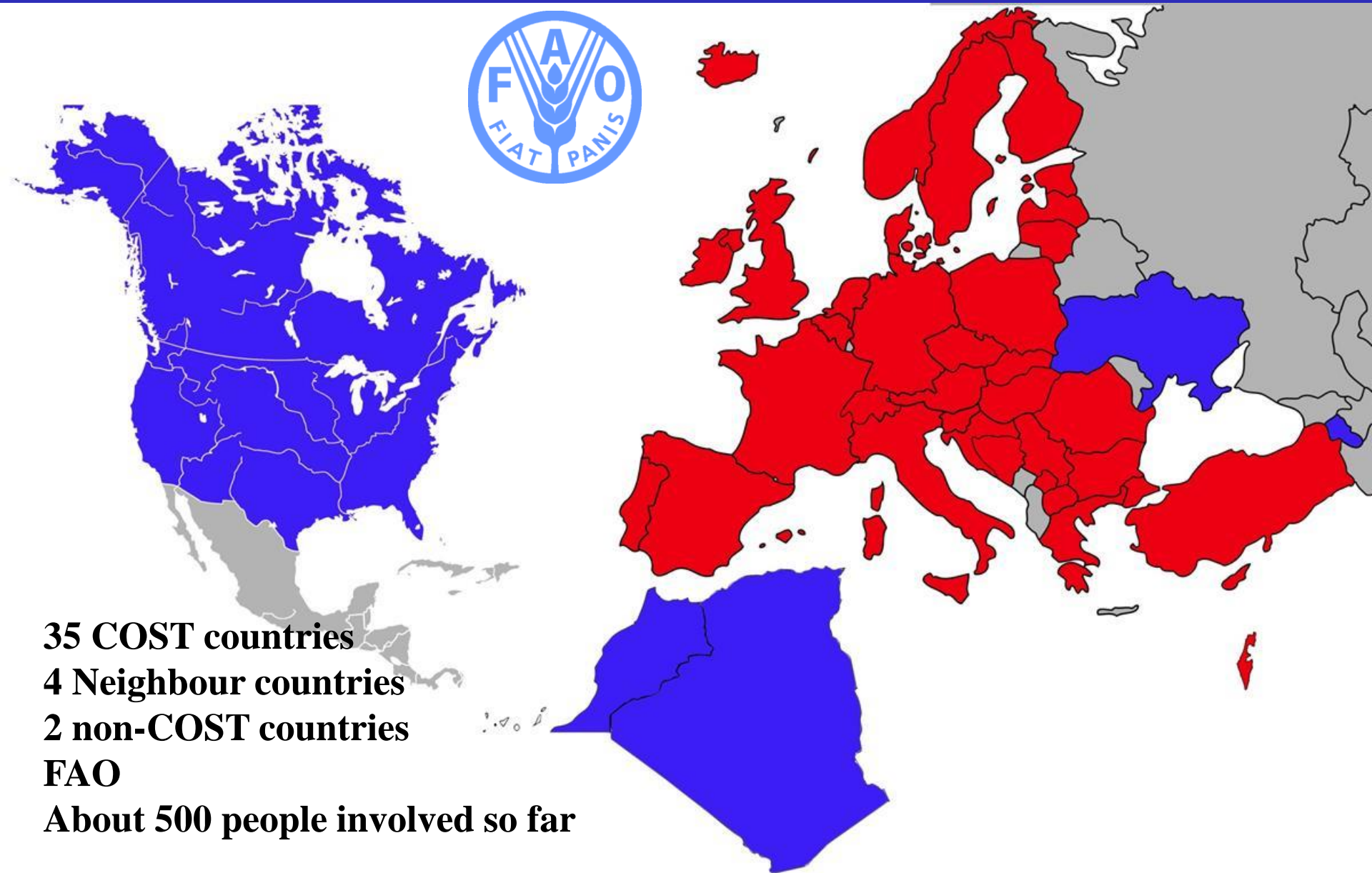
*Green Infrastructure approach: linking
environmental with social aspects in studying and
managing urban forests
(GreenInUrbs)
2013-2017*

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35 COST countries

4 Neighbour countries

2 non-COST countries

FAO

About 500 people involved so far

GreenInUrbs structure

- **Chair:** Carlo Calfapietra, IT; **Vice-Chair:** David Pearlmutter, IL
- **WG1** Environmental services of GI and UF and implications of climate change (R. Samson, B)
- **WG2** Social/cultural services of GI and UF (Liz O' Brien, UK)
- **WG3** Governance of UF in a GI approach (S. Krajter Ostoic, HR)
- **WG4** Task Force on Integration and Dissemination to stakeholders (G. Sanesi, IT)
- **STSM Coordinator:** Rocio Alonso, ES

OBJECTIVES

- To collate recent (qualitative and quantitative) findings from national or international programmes about the ecosystem services provided by GI and UF.
- To compare different approaches and conditions (climatic, socio-cultural, economic and urban planning) in the countries involved, in order to develop best practice guidelines for GI managers and decision makers to assist in the maximization of benefits from GI and UF.
- To provide scientific evidence in order to implement those best practice into legislation both at local, national and European level
- To identify the main priorities and challenges in terms of future research on GI and UF

Training Schools

Last one in Duisburg, Ruhr, DE

10-14 October 2016

Focus on practical training



20 grants 600 € each

*Practitioners, Managers,
Students, Post-doc*

To visit a laboratory abroad up to 3 months

Almost 40 funded (up to 2500 € each)

Reports and press release on www.greeninurbs.com





Opinion

CellPress

Urban plant physiology: adaptation-mitigation strategies under permanent stress

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REVIEWS REVIEWS REVIEWS

Functional traits of urban trees: air pollution mitigation potential

543

Rüdiger Grote^{1a}, Roeland Samson², Rocío Alonso³, Jorge Humberto Amorim⁴, Paloma Cariñanos⁵, Galina Churkina⁶, Silvano Fares⁷, Didier Le Thiec⁸, Ülo Niinemets⁹, Teis Norgaard Mikkelsen¹⁰, Elena Paoletti¹¹, Abhishek Tiwary¹², and Carlo Calfapietra^{13,14}

In an increasingly urbanized world, air pollution mitigation is considered one of most important issues in city planning. Urban trees help to improve air quality by facilitating widespread deposition of various gases and particles through the provision of large surface areas as well as through their influence on microclimate and air turbulence. However, many of these trees produce wind-dispersed pollen (a known allergen) and emit a range of gaseous substances that take part in photochemical reactions – all of which can negatively affect air quality. The degree to which these air-quality impacts are manifested depends on species-specific tree properties: that is, their “traits”. We summarize and discuss the current knowledge on how such traits affect urban air pollution. We also present aggregated traits of some of the most common tree species in Europe, which can be used as a decision-support tool for city planning and for improving urban air-quality models.

SPECIFIND: Choose the Best TREE SPECIES for Your City

Specifind

Fill in the form specifying your interests and start searching for arboreal plants from which you can get more benefits.

Login

Search Species

Tree Height

Height at Maturity Min Max m

Locality

Nation ▼

Locality ▼

Benefits *

Pollutant Removal Overall Specific

Overall Rate ▼

Low VOC Emissions ▼

Low Allergenicity ▼

Carbon Storage ▼

Air Temperature Reduction ▼

Select All

↑ [Show in Report](#)

Report

Estimate Values per Area Unit

Generate Report per Specie Genus

Show ▼

In the report you will get a list of the most used tree species for urban greenery, arranged according to a score (rank) expressing the degree of compliance with chased requirements.

Climatic and site requirements are measured (if you specify the location), the correspondence to the possible required height and the value of the potential environmental benefits of species, weighted according to the specified scale of importance from 0 to 10 (*).

In the report there are reported indicative benefit estimates for single adult plant (or m²), too, if required to display them.

Generate Report

Reset

» [Earth Sciences & Geography](#)

Future City



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The Urban Forest

Cultivating Green Infrastructure for People and the Environment

Editors: **Pearlmutter, D., Calfapietra, C., Samson, R., O'Brien, L., Krajer Ostoić, S., Sanesi, G., Alonso del Amo, R.** (Eds.)

Provides the first comprehensive catalog of tree species that is cross-correlated with the ecosystem services they provide in different regions of Europe

» [see more benefits](#)

Guideline

for practitioners and policy makers

ESTABLISHING AN INTERDISCIPLINARY APPROACH

- Managing the Urban Forest as part of Green Infrastructure requires the input of many disciplines. There are key roles for arborists, tree officers, foresters and green space planners. These professions understand the technical and sustainable management of the Urban Forest. Where foresters are managing the broader wooded ecosystem, arborists deal with the care of individual trees (cultivation, tree surgery, tree diseases) in practice (as consultant, or as a civil servant). A tree officer is a civil servant who is responsible for tree management at the local authority; he/she is responsible for granting permits for planting and removing trees or parts of trees. A green space planner is looking for opportunities to develop the Green Infrastructure further.
- However, in the context of Green Infrastructure, the professional caresses is much wider than the forest and tree management; urban planners, landscape architects, engineers, community workers, sustainable development and climate change specialists as well as staff and volunteers in NGOs and the community have important contributions to make to urban forestry discussions. For example, in the planning process roundtable discussion can draw on the many disciplines to help draw up policies and find creative ways of funding Urban Forest management.
- As the contributions of the Urban Forest are multiple and situated within a variety of domains, a close collaboration between different disciplines is needed: urban planners should involve green space planners when designing new developments, and arborists and foresters should be involved to check the technical feasibility of the planned establishment and management of the new green space. Climate change experts, arborists and planners should look for nature based solutions in an interdisciplinary way. The role of the Urban Forest advocate is crucial in coordinating the cooperation between different disciplines.

GOVERNANCE

- Citizens interact with the Urban Forest daily and in many ways, and consequently governance considerations are important. In respect of Green Infrastructure channeling citizen interest into urban forestry is a practical vehicle for direct engagement and is generally more easily achieved than with other Green Infrastructure elements (such as green roofs or green walls). Citizens should be involved in all stages of the Urban Forest planning process including the drafting, approval and delivery of Urban Forest management plans or Strategic Green Infrastructure plans and be offered training support. Citizens can also be involved directly in growing the Urban Forest through, for example, citizen science projects, common nurseries, tree planting schemes, monitoring tree health or planning new facilities such as forest trails. Co-designing and co-managing the Urban Forest should be a common thread in Green Infrastructure governance.



The tree-lined boulevard is the classic urban landscape in many European cities. Courtyards, alleys, and green spaces. PHOTO CREDIT: Naomi Zurcher

- At the political and legal levels municipalities and other government bodies should have in place ordinances that can protect the Urban Forest from the individual tree through to whole forests.
- It is normally local authorities in partnership with their agencies that have responsibility for the territorial Urban Forest. This responsibility extends beyond land ownership, as frequently a large proportion of the Urban Forest will be in private ownership. Through legal instruments and development planning the municipality and its partners can exert significant influence on the privately-owned elements. The private sector has a key role. There are benefits to companies and property owners in the Urban Forest since it can help reduce energy costs, add to property values, general amenity and improve the appearance of business to visitors and the public. Co-establishing the Urban Forest is a profitable investment for both the public and the private sector; not necessarily monetary, but the overall economic and societal return on investment is enormous.
- The role of NGOs in urban forestry is significant in some countries. NGOs are skilled at attracting external resources not available to public bodies. NGOs are efficient in engaging citizens in Urban Forest planning, establishment, management and monitoring.
- An Urban Forest forum in a territory may be appropriate in some situations to bring together stakeholders into an urban forestry stakeholder collaboration.



The urban forest sets the scene for important recreational areas such as the General Garden Quai, Zurich, Switzerland. PHOTO CREDIT: Naomi Zurcher

RESOURCES

- Resources needed for the Urban Forest and Green Infrastructure include staff, plans and budgets. The costs of these resources may be clear in a municipal budget, but the (monetary) benefits generated by the Urban Forest are less well documented. There are well known valuation methods in place to establish a monetary value on a territories Urban Forest. The evidence generated by this can be used to justify the resources needed to manage the Urban Forest.
- Continuing professional development is needed for those engaged in urban forestry and exchange of knowledge and techniques across the continent sought. Staff should be encouraged to become part of national and international urban forestry networks such as the European Forum on Urban Forestry (EFUF) and to avail themselves of a vast, existing body of knowledge, extensive array of online Urban Forest strategic and management plan examples as well as informative webinars.
- Strong consideration should be given to the creation and subsequent sustenance of the post of Urban Forester. It is almost unthinkable that other areas of urban infrastructure would be without a key oversight person. An Urban Forester (or a team of people in large territories) can work in planning and delivery, engage with citizens, oversee good management of the Urban Forest resource and ensure it is skilled and highly performing in respect of Urban Green Infrastructure in the territory.

SUSTAINABLE MANAGEMENT OBJECTIVES

- Sustainability planning and having long-range territorial objectives is essential. There are two crucial questions that need to be answered by green space managers. Firstly, what do we want to know, and secondly how will that information be in used in respect of the entire Urban Forest resource. The answers should then inform local standards and protocols and determine EMPs. Central to the information needs is a ground-based Urban Forest inventory followed by the implementation of a valuation methodology to determine the economic value of the ecosystem service benefits the Urban Forest is providing, and could provide into the future. This can most readily be incorporated in the planning and decision-making process in order to prioritise different project proposals and justify the relative allocation of funds for urban greening.
- Territorial guidelines are strongly advocated, directed towards the needs of practitioners and contractors and linked to Strategic Green Space (Green Infrastructure) Plans. The content can be tailored to the local and biogeographic situation. Suggested content includes planting soil specifications, tree selection protocols including genetic diversity, provenance requirements, site preparation procedures and planting protocols, establishment period criteria, e.g. watering and the development of a contract growing standard to facilitate diversity of species and quality of stock for public infrastructure projects.

INFORMATION ABOUT GREENINURBS

- COST Action FP1204, entitled Green Infrastructure approach: linking environmental with social aspects in studying and managing Urban Forests (GreenInUrbs) started in February 2013 funded by the European Commission through the European Cooperation in Science and Technology (COST) which is one of the longest-running European frameworks which encourage and supports cooperation among different communities across Europe. Led by Dr. Carlo Caffapietra of the Institute of Agro-Environmental and Forest Biology (IBAF) of the National Research Council (CNR), Italy, GreenInUrbs is a collaborative effort between scientists, practitioners and policy makers engaged with the environmental, socio-cultural, governance and economic aspects of Urban Forests within a broader Green Infrastructure perspective.

FURTHER INFORMATION

- Web links to further reading on Green Infrastructure and Urban Forestry can be found at the European Forum on Urban Forestry website www.efuf.org

AUTHOR CREDITS

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