



Green Infrastructure approach: linking environmental with social aspects in studying and managing urban forests

(GreenInUrbs)

2013-2017

Carlo Calfapietra, Chair

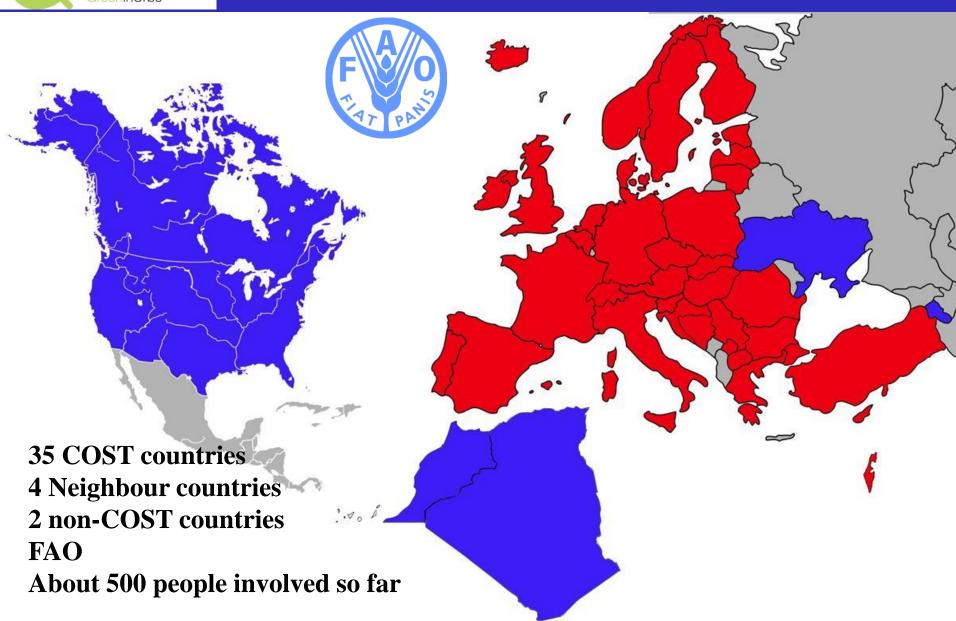
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DIMENSION OF THE ACTION





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



Workshops



CHAIRS AND SPEAKERS



Carlo Carlopin ha is a researcher at the Italian National Research Council (CNR), institute of Agro-Environmental & Forest Biology (IBAF) and Lecturer in Urban Forestry at University of Tuscia. His main interests are the bio phre-atmosphere interactions and the effects

these with a particular focus on the biogonic VOZ emission both in untern and unel vendroments. Dr. Callagiera has pushfield about 70 research papers on international pursuabhooks onthere brogis-fiveder 39, like it Member of the Estonic Stando International pursuas. Member of the Scientific Corrective Util, Environmental and Secondance? Scientific Corrective Util, Environmental and Secondance? Scientific Corrective Util, Environmental and Secondance? "Secondal Carlo and member of the CoST Action FETSIAL "Secondal Carlo and member of the Cost of Excellental Czechniche for the study of climate change consequences."



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Natalia Bastral is an Assistant Professor at the University of Professor at the University of Management, Sedon for Landsong Assistant and Management, Sedon for Landsong Assistant and Professor and Professor Assistant and Professor Assistant and Professor Assistant Assistant

go emance and a Master in Public Administration from the University of Washington Evens School of Public Policy and Governancewith affocus on urban sustain APATA



Christos Fragatis is Deputy Head in the Unit of Sustainable management of natural resources which is responsible for innovating with nature and output heritage for environmental, sodial and comomic sustainability and mellinese as part of thesociate challenge 5 on Q inste-ction and property of the part of the property o

hearn, and environment. She has wonded for the Nertics, the National institute for Health Prevention and Education, as responsible for national communication campaigns retailing to the use of alsohol, and addictions. In 2008, the was dicted as counsation of the City of Paris 14th district seasoning the deligation for given seaso and mobile deligationsy. During her form deligation for given seaso and mobile deligationsy. During her form deligation to given aleas and mobile deligationsy. During her form



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Claud in Cecchi currently holds the established chair of #Political Economy of Sustainable Tourisms at the Riculty of Economics, SAMENZA University of Forms He is Director of the Research Contre on European, International and Development Studies (EuroSejenica), He is also Boulty member of the International Conference and I see





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experience includes various architectural projects as well as town and environmental planning for the public and private sectors in leaset, Madrid-Spain, London, Circing and Mr. Major projects in the last ten years in Israel include: Master Plan



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Countries, as well as several publications and premorations of applied research. Bin is working as enerouther for Policy and Administration of Urban Gramming, and took part at several EU Lost Actions. Bin study Economics or Plants as Richarkal Lost analys March, Universit of Applied Science of Plants as Richarkal Lost analys March, Universit of Applied Science of Plants as Richarkal Europe Region and World Urban Pariss. Member of the Board of World Urban Pariss and Mamber of the Working Group for Applied Research World Urban Paris.



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Architects. His research explores dates of integration between open and built spaces, and neutral and utem environments, spanning from large territorial/urban to small site scales. Meuro's projects and writings have been widely published in books and journals (Dimans, Johlang Casabdia, AHJ, Tarashon, Architecture Australia among others), exhibited and avanded nationally and internationals and connected in conference can be used.



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Papers



Opinion



Urban plant physiology: adaptation-mitigation strategies under permanent stress

Carlo Calfapietra^{1,2}, Josep Peñuelas^{3,4}, and Ülo Niinemets^{5,6}

REVIEWS REVIEWS REVIEWS

Functional traits of urban trees: air pollution mitigation potential

Rüdiger Grote¹⁴, Roeland Samson², Rocio Alonso³, Jorge Humberto Amorim⁴, Paloma Cariñanos⁵, Galina Churkina⁰, 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.

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Tools

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

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-Locality -Nation select Locality select ∨ -Report -Estimate Values per Area Unit Generate Report per Specie Genus Show All 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

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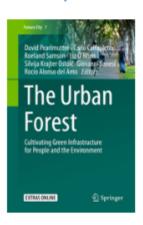
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The Urban Forest

Cultivating Green Infrastructure for People and the Environment

Editors: Pearlmutter, D., Calfapietra, C., Samson, R., O'Brien, L., Krajter 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

- 11. Managing the Urban Forest as part of Green Infrastructure requires the input of many disciplines. There are key robes for arboints, tree officers, foresters and green space planners. These professions understard the technical and sustainable management of the Urban Forest. Where foresters are managing the broader wooded exceptions, arboints deal with the care of individual trees (cultivation, tree curpor, tree diseases) in practice (as consultant, or an a child servant). A tree officer is a circle servant who is responsible for tree management at the local authority, heide is responsible for granting permits for planting and removing trees or prats of these. A green space planner is looking for opportunities to develoc the Servan Instantuture further.
- 12. However, in the context of Green Instaltucture, the professional canness is much which than the forest and the management, utdans planness, lunchages excluded, sequence, community workness a statistical elevelogment and climate change specialists as well as staff and volunteers in NEOs and the community have important contributions to make a forest bundle foreign discussions. For example, in the planning process countfable discussion can draw on the many disciplines to help draw up policies and fill or earlier ways of filming this film foreign management.
- 13. As the contributions of the Urban Forest are multiple and situated within a underly of formains, a close collaboration between different disciplines is needed; urban planners should involve green space planners when designing new developments, and arbotats and foresters should be involved to check the technical feasibility of the planned esobblishment and management of the new green space. Climate change experts, arbotists and planners should lock for nature based solutions in an interdisciplinary way. The role of the Urban Forest advocates is cruzial in coordinating the cooperation between different disciplines.

GOVERNANCE

14. Ottoras interest with the Urban Forest daily and im many ways, and consequently governance considerations are important. In respect of Green Infrastructure channelling citizen interest into urban ferestly is a practical vehicle for check engagement and is generally more assily active of the with other Green Infrastructure elements (such as green roofs or green veals). Citizens should be involved in all stages of the Urban Forest planning process including the artifling, appreved and.

be involved in all degles of the Utash 1 delivery of Utash Ferest management plans of Sittateji Cerel Infrastructure plans and he offered training apport. Olizens can also be involved directly in growing the Utan Ferest Insput, for example, citizen exisces projects, common nursies, the planting schemes, monitoring the health or planning new localities such as forest trails. Co-design and co-managing the Utash Ferest should be a common thread in Green Instituture governtment in Green Instituture governtment in Green Instituture govern-



The tree lined bouleverd is the classic urben landscape in many Europe office. Cours Mirabeau, Alx-en-Provence, France. PHOTO CREDIT: No.

- 15. At the political and legal levels municipalities and other governmental bodies, should have in place ordinances that can protect the Urban Forest from the individual tree through to whole forests.
- 16. It is normally local authorities in partmentily with that appraises that have responsibility for the territorial Urban Forest. This responsibility searned beyond land ownership, as frequently a large proportion of the Urban Forest will be in privides ownership. Through legal instruments and development planning the municipality.



The urban forest sels the scene for important recreational areas such as the General Guisen Qual, Zurich, Switzerland. PHOTO CREDIT: Heomi Zurcher.

- and its partners can exent significant influence on the privately-owned elements. The private sector has a key role. There are benefits to comparise and property owners in the Utban Forest since it can help reduce energy costs, add to property values, general amenity and improve the appearance of business to visiture and the public. Co-establishing the Utban Forest is a profitable investment for both the public and the private sector; not necessarily monetary, but the overall economic and societal return or investment is enormous.
- 17. The role of N5Os in urban forestry is significant in some countries. N5Os are skilled at attracting external resources not available to public bodies. N6Os are efficient in engaging citizens in Urban Forest planning, establishment, meragement 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.

DESCHIDCES

- 19. Resources needed for the Urban Forest and Green Infrastructure include staff, plans and budgets. The costs of these resources may be dear in a municipal budget, but the (increatery) benefits generated by the Urban Forest or less well documented. There are well income relation methods in place to establish a monetary value on a territories Urban Forest. The evidence generated by this can be used to lastify the resources needed to manage the Urban Forest.
- 20. Continuing professional development in needed for those engaged in urban forestry and exchange of knowledge and techniques across the continent rought. Staff should be encouraged to become part of national and international urban brosstyn extensions such as the European Forum on Urban Forestry (EFUF) and to avail themselves of a vast, existing body of knowledge, extensive earray of online Urban Forest strategic and management plan examples as well as limit formative webrans.
- 21. Strong consideration should be given to the creation and subsequent sustemance of the post of It-ben Forester. It is almost until mindable that other areas of urban infrastructure would be without a key oversight preson. An Othan Forester (or a learn of people in large territoria) can work in planning and delivery, engage with citizens, oversee good management of the Urban Forest recourse and ensure it is signed and highly proferring in respect of Urban Ginen Infrastructure in the Serticy.

SUSTAINABLE MANAGEMENT OBJECTIVES

- 22. Sustainability planning and having trony-range terrhotal chycichees is essential. There are two crucial questions that need to be answered by green space managers. Frutly, what do we want to know, and secondly how well that information be in used in respect of the entire United Trenst resource. The answers should then inform host alteralized and protocols and determine BMR. Central to the information needs is a ground-based Unban Forest inventry plobwed by the implementation of a valuation methodology to determine the concrnic value of the occeptance service benefits the Unban Forest is providing, and code provide into the future. This can most ready be incorporated in the planning and decision-making process in order to prioritise different project proposals and justify the relative allocation of index for turban greening.
- 23. Territorial guidalnea are strongly artwocated, directed towards the needs of practitioners and contracts and inside to Strategic Green Spaces (Green Hindusculum) Plans. The content can be talored to the local and biopolographic estitution. Suggested content includes planting only pecifications, the election protocols including questic diversity, provenance requirements, site preparation procedures and phring protocols, establishment princis of clining, a, unstering and the development of a contract growing standard to facilitate diversity of species and quality of stock for public infrastructure provides.

INFORMATION AROUT GREENINGERS

24. COST Action FP1204, entitled Green Infractructure approach: Initing environmental with social aspects in audying and managing lithers forests (is-entitlet/be) stated in February 2013 bunded by the European Commission from the European Cooperation in Science and Technology (2003) which is one of the longest-running European frameworks which encourages and supports cooperation among different communities across Europe. Led by Dr. Carlo Callipletar of the Institute of Agro-Envirormental and Ferent Biology (8849 of the National Research Courcil (24R), bay Greenfalths is a collaborative effort between scientists, practitions and policy makes engaged with the environmental, socio-cultural, governance and aconomic sepacts of Urban Forsets within a broader force in Institute on espective.

FURTHER INFORMATION

25. 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

Cive Davies, Maria Beatrice Andreucci, Naomi Zurcher, Filk De Vreese, Andrej Verlië, Giovanni Sanesi, Andreas Bernssooni, Carlo Calfepietra.





