



DAY 1

27-06-22

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SCIENCE

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BOOK OF
ABSTRACTS

SCIENCE

URBAN FORESTS FOREST URBANISMS & GLOBAL WARMING

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*Developing Greener, Cooler
& more Resilient Cities*

DAY 1 | SCIENCE
27–06–22

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The day will concentrate on insights from earth, environmental and related sciences—particularly ecology, forestry, soil science, geology, and environmental psychology. It will focus on empirical and evidence-based approaches that support policies, programmes, and projects. Research from across the world will highlight the state-of-the-art in the interdisciplinary field of urban forestry, particularly with regards to climate change mitigation and adaptation to global warming.

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Cultura: schermo intero

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DAY 1

PROGRAMME

SCIENCE

08.30

REGISTRATION & COFFEE

09.00

INTRODUCTION & WELCOME

09.15 – 10.55

SCIENCE EXPERT PANEL

Moderator: Bart Muys

- 09.15 **CECIL KONIJNENDIJK** → 10
Reforestation of the City in Times of Global Change: Providing evidence-based guidance
- 09.35 **CHRISTIAN MESSIER** → 12
Novel Tools and Approaches to Manage Green Spaces in Urban and Peri-urban Areas for Resilience
- 09.55 **CYNNAMON DOBBS** → 14
Demand and Supply of Urban Forest Ecosystem Services: Are expectations fulfilled?
- 10.15 **COLLEEN MURPHY-DUNNING** → 16
Promoting Inclusive Urban Forestry: Scaling from population data to engaging people
- 10.35 **RIK DE VREESE** → 18
Urban Forests as Nature-based Solutions: Public perceptions in Europe and China

10.55 – COFFEE

11.15

MODERATED DISCUSSION

12.30

LUNCH BREAK

13.30 – 16.30

PARALLEL SCIENCE PAPER SESSIONS

SCI I → 20

EVIDENCE-BASED URBAN FOREST
MANAGEMENT & PLANNING

Moderator: Francesc Baró

ANDREA HIOTT ^{FT}

SOMIDH SAHA ^{PK}

BULENT OZEL ^{PK}

MAIDER LLANGUND-MUNITXA ^{PK}

AGATHA CZEKAJIO ^{PK}

TOM CORNU ^{PK}

DISCUSSION

SCI II → 28

CLIMATE SMART URBAN FORESTS: WHAT &
HOW?

Moderator: Ben Somers

SASKIA DE WIT ^{FT}

FANNY MAURE ^{PK}

KAREN DE PAUW ^{PK}

SONIA LE MENTEC ^{PK}

RITA SOUSA-STELLA ^{PK}

ANNALISA METTA ^{PK}

DISCUSSION

16.30 – COFFEE

16.45 – 17.45

ROUND TABLE OF EXPERTS

17.45 – WALK TO LEUVEN TOWNHALL

18.00

LEUVEN CITY WELCOME

by Elderman David Dossers

18.15

RECEPTION

AM —

— PM

Scan here for latest
programme updates



FT = Full Time 15' - 10' Reception
PK = Paper Kiosk 20' x 20' Slides + 10' Reception

SCIENCE SESSION I I

CLIMATE SMART URBAN FORESTS: WHAT & HOW?

The value of urban forests for heat alleviation, air filtering, carbon sequestration, and water regulation is widely acknowledged. Yet, due to climate change urban forests are under increasing pressure. The harsh environmental conditions prevent them to achieve its full ecosystem service provisioning potential. New insights in monitoring, management and design are needed to make our urban forests more climate-smart/resilient.

Moderation:
BEN SOMERS

Earth and Environmental Sciences, KU Leuven

SASKIA DE WIT

How Trees Shape Urban Spaces.

FANNY MAURE

SylvGIT.

KAREN DE PAUW

The Urban Heat Island Accelerates Litter
Decomposition Through Microclimatic Warming in
Temperate Urban Forests.

SONIA LE MENTEC

Bibliometric Analysis to Identify Thematic Cross-
referencing of Studies on Urban Heat Island and
Greening at the Urban Canopy Scale.

RITA SOUSA-SILVA

Which Trees Can Withstand Climate Change and Other
Urban Stressors?

ANNALISA METTA

Timing for Urban Forestry.

and/or specific stressors.

Focusing on the most abundant urban tree species in northeastern North America, in our study, we sought to classify tree species according to their tolerance to multiple stressors and disturbances—soil compaction, air pollution, insects and diseases, ice storms, snow, de-icing salts, strong winds, drought, and extreme temperatures—as well as to assess which intrinsic characteristics may capture a species' ability to cope with these stressors. To do so, in the first part of our study, we used the Delphi method to elicit the knowledge of experts (here, urban forestry professionals). The Delphi is a group facilitation technique that seeks to obtain consensus on the opinions of experts through a series of structured questionnaires in situations where there is contradictory or insufficient information, as is the case for species-specific sensitivity and tolerance to stress. Then, in the second part of our study, we circulated a questionnaire through networks of students and professionals in forestry to gain access to more people in the field and a wider range of opinions.

Among the most abundant urban tree species in northeastern North America, Ginkgo biloba, Gleditsia triacanthos, and Quercus and Ulmus spp. were rated by the experts as the most tolerant to the studied stressors, although none of the species were rated as tolerant to all stresses and disturbances. Furthermore, there was a lack of agreement among respondents regarding the degree to which a given species was likely to be affected by (or respond to) a given stressor. This has also allowed us to highlight gaps in knowledge that require further study.

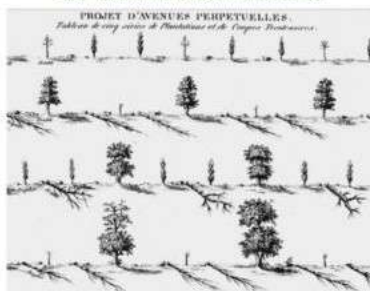
These findings fill important gaps in our knowledge of trees' vulnerabilities and thus may be useful in informing the choice of tree species that could be planted across our cities (e.g., reducing the costs of tree maintenance and replanting) to build the resilient urban forests the 21st century needs.

Timing for Urban Forestry.

Annalisa Metta

Architecture Department, Roma Tre University

polycyclic plantation – time-oriented design –
self-reliant morphogenetic process



In a relentlessly urbanized planet, when climate change and environmental alterations are increasingly and sometimes irreparably serious, urban forests are claimed as superheroes capable of saving cities from their lethal destiny. Intended as service-providers for enhancing biodiversity, improving environmental indicators, and ensuring ecological sustainability, urban forests are asked to guarantee measurable and assessable results, achieve top-of-the-heap scores according to the performance tables of ecological functionalism, as if they were tried-and-tested devices or ready-made facilities, able to supply immediate, stable, and reliable effects. Yet, forestation is never an instantaneous action, and it does not produce constant results. It is rather a ceaseless ongoing process. Therefore, putting urban forestry into a medium-long term horizon is an inescapable and constitutive projection for any design, which is fatally called to collaborate with both the biological rhythms of the living beings and the socio-economical rhythms of the urban metabolism. So, time-variable is crucial when listing the data proving the profitable services given by planting forests into the city, because the quantities

of the captured pollutants or the reduction of the heat island critically depend on the age of the trees' population (growing and expiry) as well as on their seasonal features (recurring cycles). Likewise, time affects the architecture of the urban forests, in terms of density, sameness, or diversity of the planting patterns, both driven by sylvicultural practices and by the forests' self-reliant morphogenesis, such as self-thinning as a strategy of survival and regeneration. And the two issues – urban forests as trees architecture and urban forests as ecological infrastructures – should never be divorced. Already in 1827, in his *Traité général des eaux et forêts, chasses et pêches*, Jacques-Joseph Baudrillart underlines the advantages coming from what we today name 'polycyclic plantation': in the board titled 'Projet d'avenues perpetuelles', he proposes to plant uneven-aged trees of different species and to remove some trees every few decades, to keep the alignment (architecture) and provide wood resource (sustainability). More recently, projects conceived by well-known landscape architects – from Michel Desvigne to Studio Vulkan, from LOLA to TK Studio – highlight some possible applications of timing for urban forestry; for instance, some of them start with dense, obsessive plantings and then make room through subtraction and thinning; other ones operate in the opposite way, pushing the progressive thickening of the trees.

Assuming time as a design tool for urban forestry is challenging because it requires to deal with variable settings and even a certain degree of unpredictability: it asks for accepting that the outcomes, both in terms of space and ecology, are always provisional and linked to contingencies that cannot always be foreseen. This spoils the very idea of efficiency and guarantee of performance typical of ecological and economical determinism. Timing for urban forestry precisely asks for overcoming the idea of urban forests as appliances, such as machines or gadgets, because they continuously change, develop, get stronger as well as vulnerable, they age and perish, according with the laws which rule the biological and social life of both trees and humans.



HEAT PLAN & GREENING POLICY OF LEUVEN

David Dessers

Deputy Mayor in Leuven

Dessers studied journalism at the Katholieke Hogeschool Mechelen. Before becoming deputy mayor, he was known for his climate activism and engagement in the North South movement. He worked for NGOs like Oxfam and 11.11.11. He subsequently co-founded Climaxi, a climate organisation. From 2011 to 2018 he organised a yearly solidarity festival in Leuven called Wereldfeest. He has a very broad social engagement. He was co-founder of the Centre for Economic Disobedience (CEO) and is a founding member of Leuven2030. Apart from that he (co-)wrote several books, one published in 2017 titled 'Leuven in alle straten. Voor een stad die durft'.

Dessers was first elected as city councillor in 2012. Since January 1st, 2019 he is deputy mayor for mobility, climate and sustainability, agriculture and food.

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GRAPHIC DESIGN / WEBSITE
Valerian A. Portokalis & Xenia Stoumpou



The **International Center of Urbanism** (ICoU) focuses on the most pressing contemporary issues at stake in settlements and environments across the globe. Urbanization continues to gallop ahead in most parts of the world, while massive restructuring is clearly necessary in post-industrial societies. At the same time, business as usual is challenged by unprecedented migration of humans and species and the consequences of climate change.

Gattura schermo intero

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