

REVEALING THE WORLD'S URBAN FORESTS

Adding a place perspective to green infrastructure planning

CECIL KONIJNENDIJK, PROFESSOR OF URBAN FORESTRY
UBC FACULTY OF FORESTRY





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Urban Forestry

To meet the growing demand for urban forest managers and urban forest planners, the Faculty of Forestry (with support from the [School of Architecture & Landscape Architecture](#)) has launched a new bachelor degree in Urban Forestry (BUF).



What is Urban Forestry?

Urban forestry is about planning and managing urban green-spaces and ecosystems for human welfare, ecological health, and protection of our cities' support systems. Urban forest networks, parks, wetlands, and other green infrastructure are vital in moderating heat waves and cooling demands, maintaining biodiversity and carbon sinks, controlling forest fires, and storm-water flood mitigation.

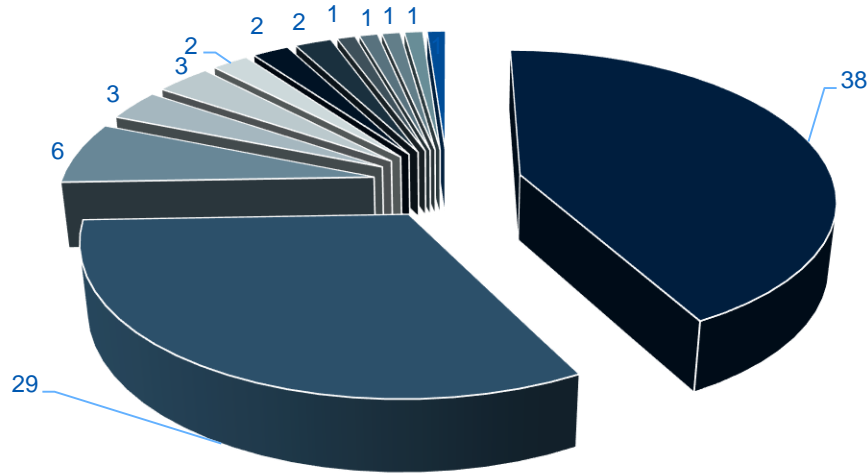
Urban Forests improve and protect our health, property values, local jobs and businesses, outdoor recreation opportunities, and community character. Forests and green systems compete for space among buildings, roads/transit, storage facilities, and energy infrastructure. Urban foresters of the future will need to stand shoulder-to-shoulder with other urban planning, infrastructure development, and management



Questions? Comments?

We are here to help.
Contact us today.

STUDENTS IN URBAN FORESTRY INTRO COURSE



- Canada
- China (mainland)
- USA
- Japan
- Taiwan
- Hong Kong
- Switzerland
- Australia
- Bangladesh
- Bolivia
- Brazil
- Macedonia
- South Korea

STUDENT HOME CITIES

Over 10 million inhabitants

Beijing, Harbin, Seoul, Shanghai, Tokyo



Between 1 and 10 million inhabitants

Calgary, Dhaka, Foshan, Fuzhou, Hangzhou, Hong Kong, Jiangmen, Kunming, London, Nanjing, Porto Alegre, Qingdao, Sanmenxia, Sanming, Taipei, Toronto, Vancouver, Wuhan, Yokohama, Zhuji

Between 100,000 and 1 million inhabitants

Abbotsford, Atlanta, Basel, Boston, Cairns, Coquitlam, La Paz, Oshawa, Seattle, Surrey

Less than 100,000 inhabitants

Aurora, Bellingham, Burnaby, Kirchberg, Langley, Mannheim, Mukilteo, New Westminster, North Vancouver, Sault-Ste-Marie, Vernon, West Vancouver

Cities are the future

Rapid urbanization is overtaxing the planet, but it may not have to

© Sebastian Opitz/Novarc Images

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Special Issue **URBAN PLANET**

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The Anthropocene

A man-made world

Science is recognising humans as a geological force to be reckoned with

May 26th 2011 | from the print edition

[Tweet](#) [2](#)



THE here and now are defined by astronomy. Astronomy takes care of the here: a planet, star embedded in one of the spiral arms of the galaxy that is itself part of the Virgo supercluster of similarly vast entities dotted throughout the universe. Geology deals with the now: the 10,000-year epoch, a peculiarly stable and clement part of the period, a time distinguished by regular shifts into and out of ice ages. It forms part of the 65m-year Cenozoic era, distinguished by the opening of the Atlantic, the rise of the Himalayas, and the widespread presence of flowering plants. This era in turn marks the most recent part of the Phanerozoic, the 540m-year chunk of the Earth's history wherein rocks with fossils of organisms can be found. The regularity of celestial clockwork and the constancy of the rock give these co-ordinates a reassuring constancy.

Now there is a movement afoot to change humanity's co-ordinates. In 2002, Paul Crutzen, an eminent atmospheric chemist, realised he no longer believed in the Holocene. He was living in some other time, one shaped geologically by

The Economist

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Welcome to the Anthropocene

Geology's new age

Getting Spain's protesters off the plazas

Obama, Bibi and peace

The costly war on cancer

How the brain drain reduces poverty

A soft landing for China

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The geology of the planet

Welcome to the Anthropocene

Humans have changed the way the world works. Now they have to change the way they think about it, too

May 26th 2011 | from the print edition

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THE Earth is a big thing: if you divided it up evenly among its 7 billion inhabitants, they would get almost 1 billion tonnes each. To think that the workings of so vast an entity could be lastingly changed by a species that has been scampering across its surface for less than 1% of 1% of its history seems, on the face of it, absurd. But it is not. Humans

Provide universal access to safe, inclusive and accessible, green and public spaces

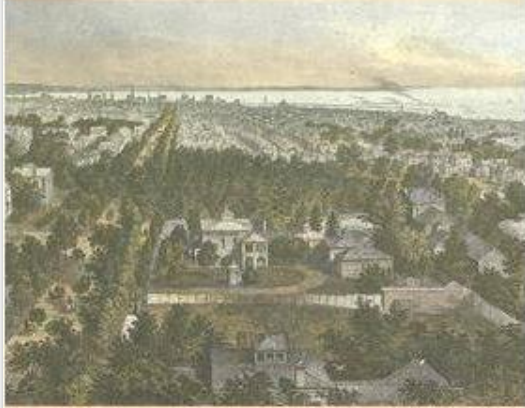
In particular for women and children, older persons and people with disabilities





*A Historical
Geography
from the
Renaissance
through the
Nineteenth
Century*

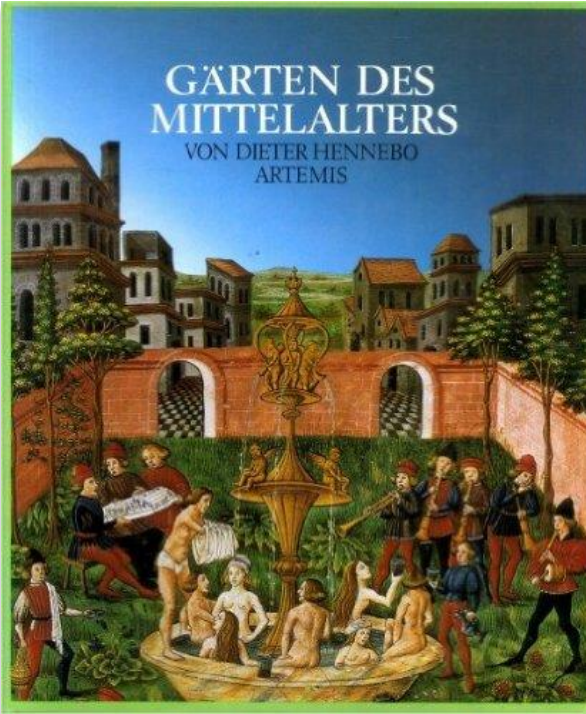
City Trees



HENRY W. LAWRENCE

GÄRTEN DES MITTELALTERS

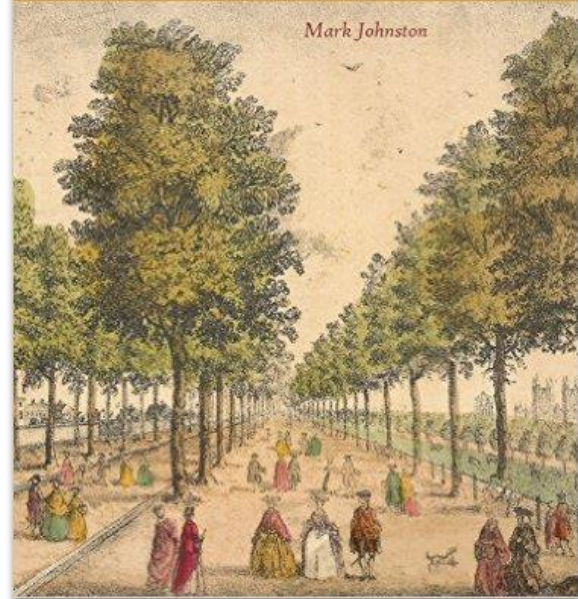
VON DIETER HENNEBO
ARTEMIS

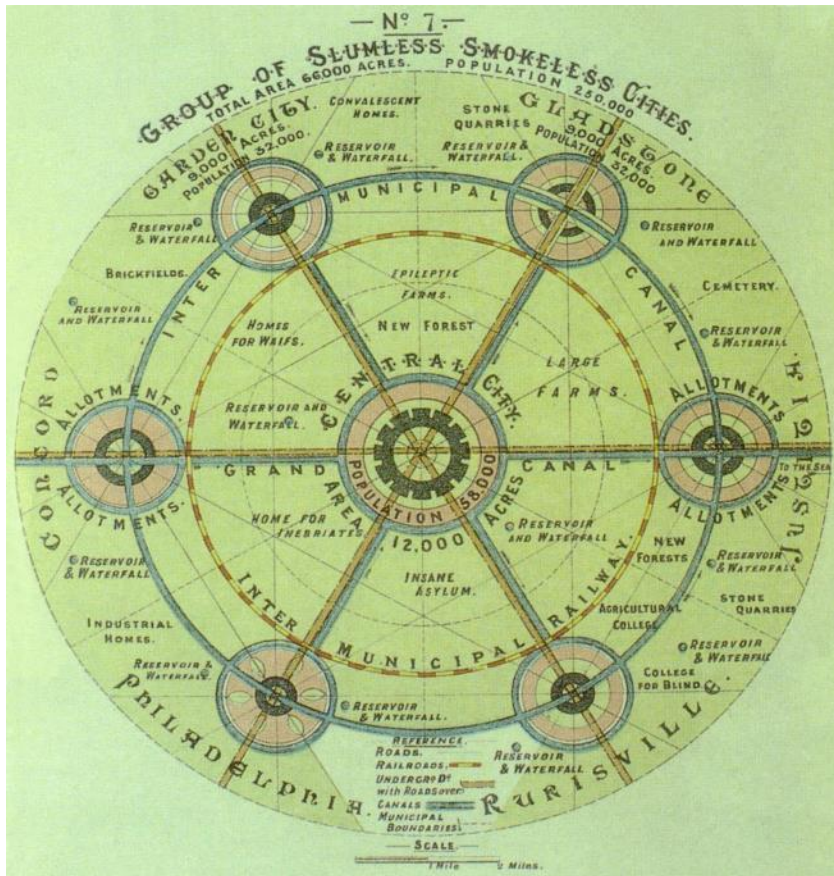


Trees in Towns and Cities

A HISTORY OF BRITISH URBAN ARBORICULTURE

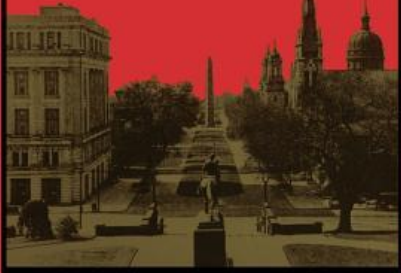
Mark Johnston





Source: Ebenezer Howard, Garden Cities of Tomorrow / from Wikimedia Commons

The City Beautiful Movement



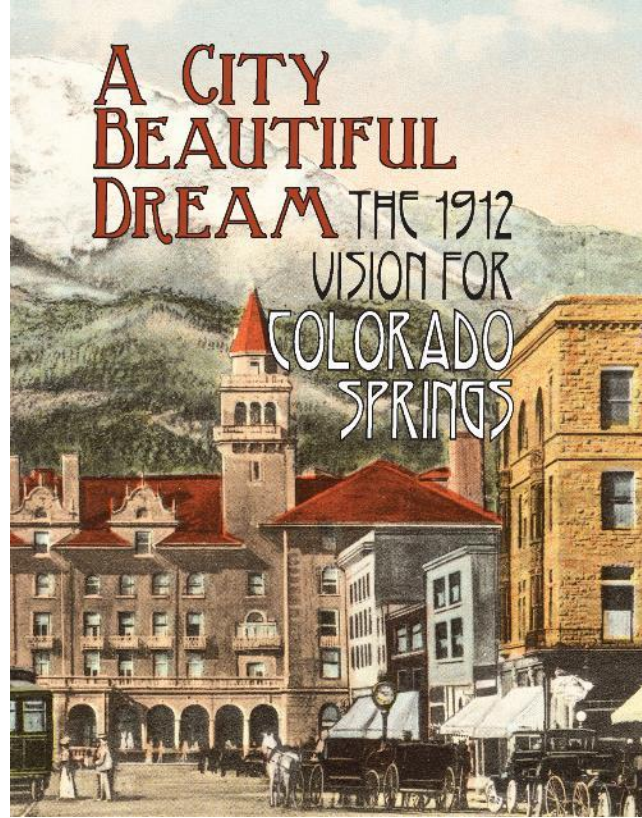
William H. Wilson



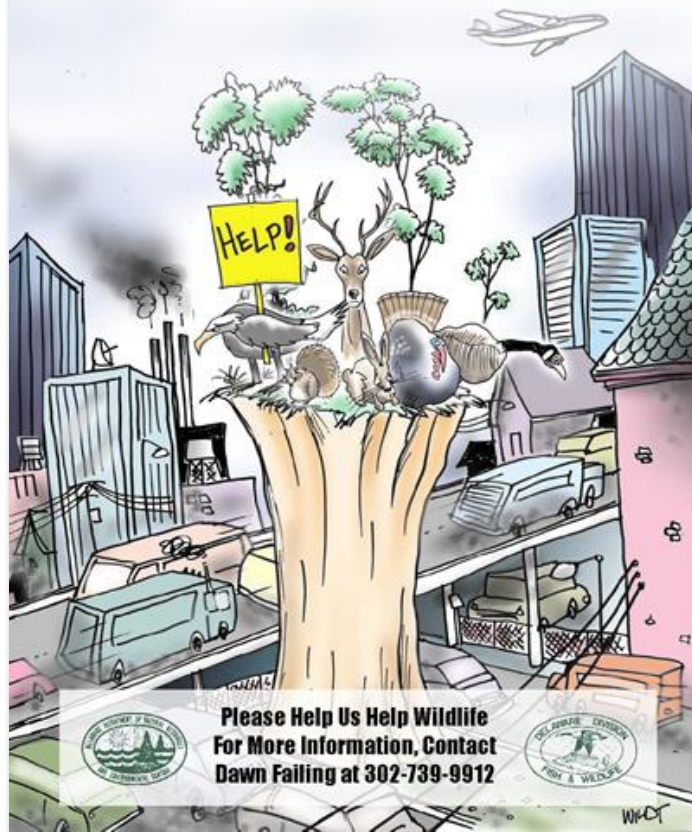
OLMSTED ARCHIVES

A CITY BEAUTIFUL DREAM

THE 1912
VISION FOR
COLORADO
SPRINGS



Loss of Habitat is the Greatest Threat to Delaware's Wildlife



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Dawn Failing at 302-739-9912**



WFD

LIVERPOOL

GREEN INFRASTRUCTURE STRATEGY

EXECUTIVE SUMMARY



The city's life support system – the network of natural environmental components and green and blue spaces that lies within and around Liverpool and provides multiple social, economic and environmental benefits.

The Liverpool Green Infrastructure Strategy has been developed to maximise the benefits that the city can gain from the sustainable management of its natural environment. Green infrastructure is a critical infrastructure for the economy and health of the city.

The purpose of the strategy is to support the aspirations for the future sustainable development of Liverpool to ensure that it is:

**“..one of the best places to live,
work, invest and enjoy life”¹**



What is Green Infrastructure?

Green Infrastructure can be broadly defined as a strategically planned network of high quality natural and semi-natural areas with other environmental features, which is designed and managed to deliver a wide range of ecosystem services and protect biodiversity in both rural and urban settings.

More specifically GI, being a spatial structure providing benefits from nature to people, aims to enhance nature's ability to deliver multiple valuable ecosystem goods and services, such as clean air or water.

PRINCIPLES OF GI PLANNING

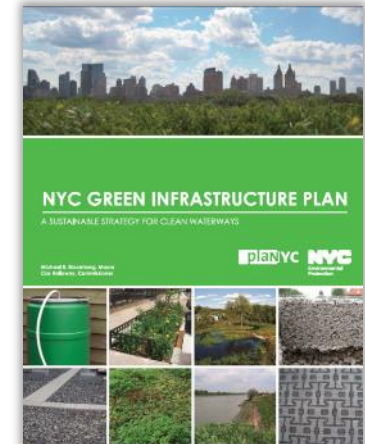
Planning content

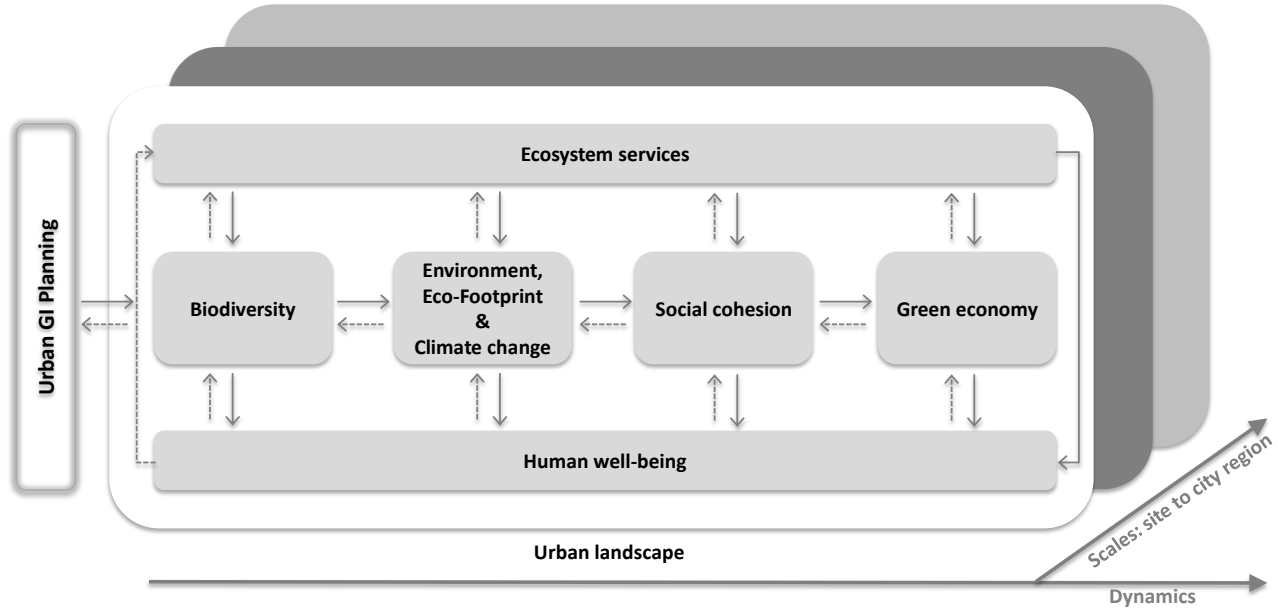
- Network / connectivity
- Multifunctionality
- Grey-green integration
- Multi-scale

Planning process

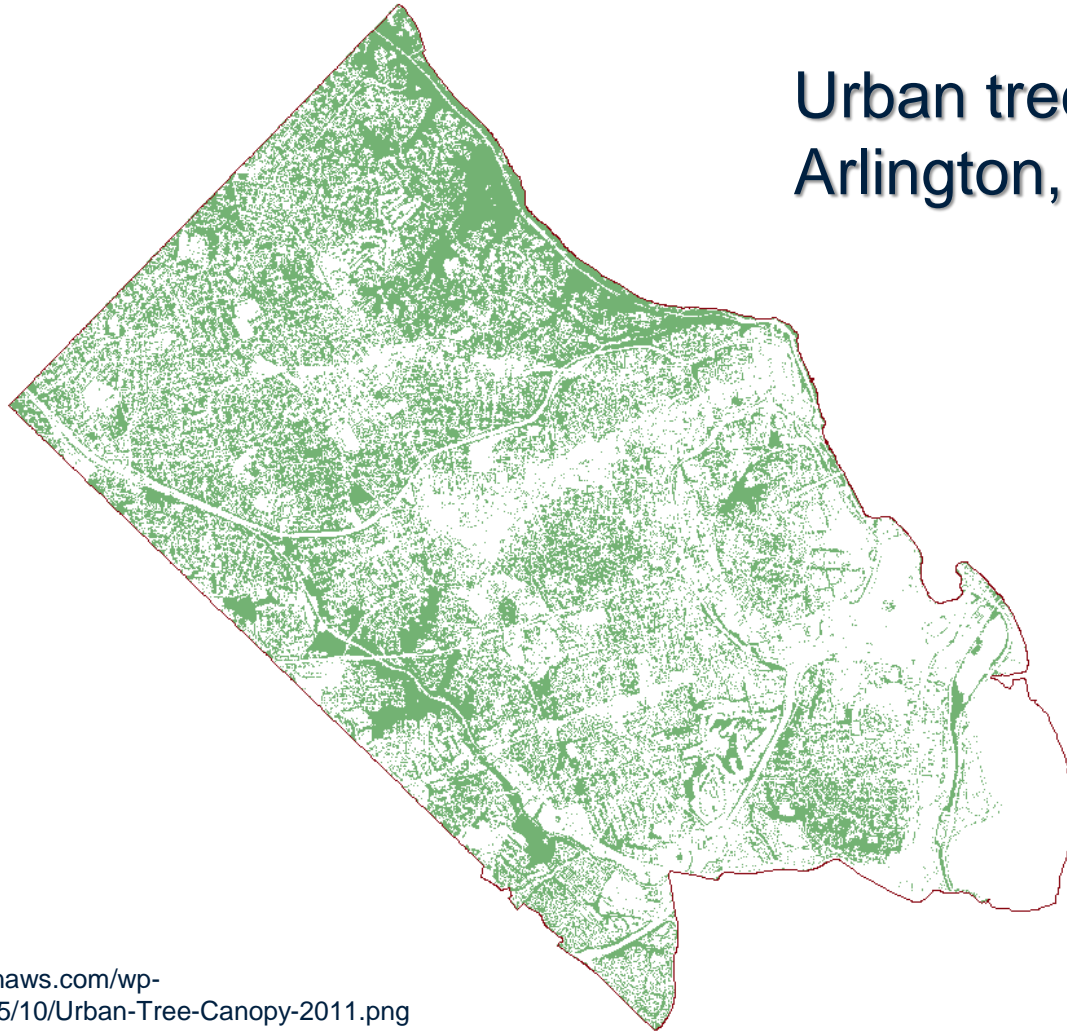
- Strategic
- Inter- and transdisciplinary
- Socially inclusive

Pauleit et al. (in press), based on Davies et al. (2015)





Urban tree canopy, Arlington, Virginia, US



<https://arlingtonva.s3.amazonaws.com/wp-content/uploads/sites/13/2015/10/Urban-Tree-Canopy-2011.png>



Eco
Streets
Hydro
Vue

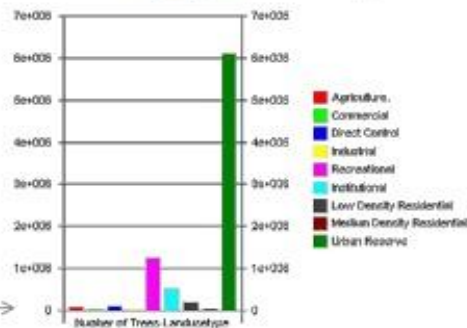
STRUCTURE
FUNCTION/BENEFIT



ECONOMIC
VALUE



MANAGEMENT





VALUING LONDON'S URBAN FOREST

Results of the London i-Tree Eco Project

Summary

The London i-Tree Project involved hundreds of volunteers conducting the largest city tree survey of its kind in the world in 2014. Using the information collected, the quantity and value of some of the benefits that London's trees and woodland provide were calculated, referred to as ecosystem services.

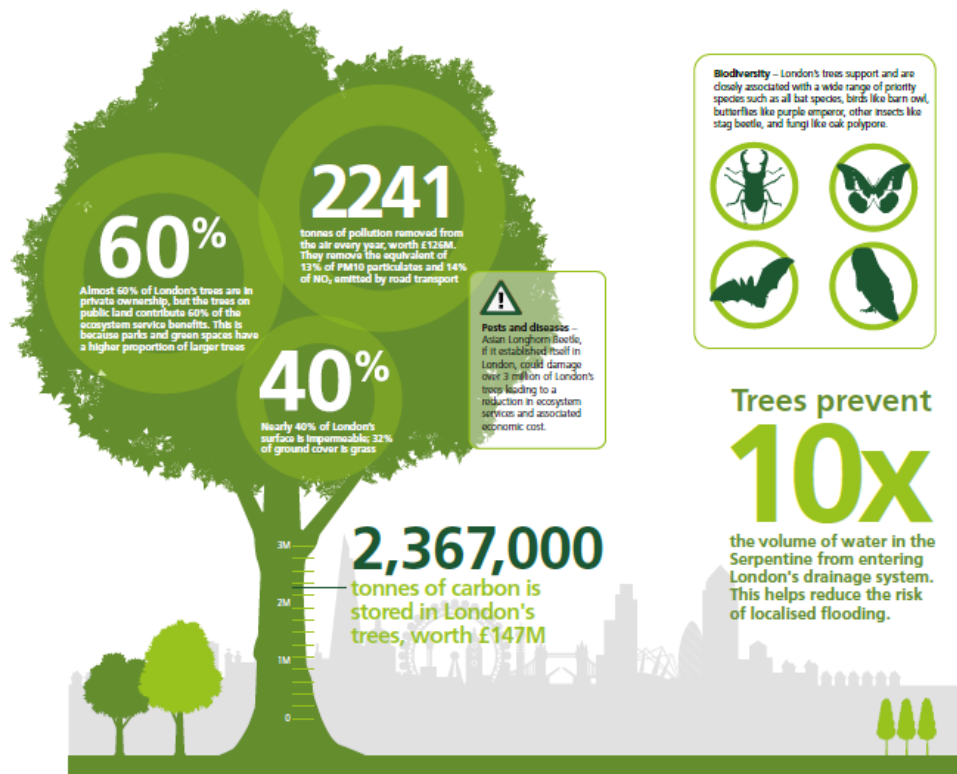


The benefits measured include air pollution removal, reduction of storm water run-off and carbon sequestration.

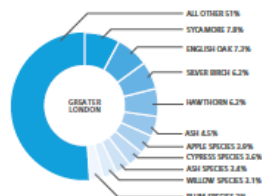
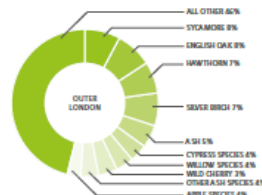
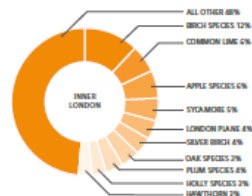
This leaflet provides just some of the headline information and key messages. For further information – including a breakdown of the trees and associated benefits for both inner and outer London – download the full report "Valuing London's Urban Forest" from www.urbantreecover.org/location/london



London's trees provide at least £133M of benefits every year in terms of air pollution removal, carbon sequestration and reducing the amount of water going into drains.



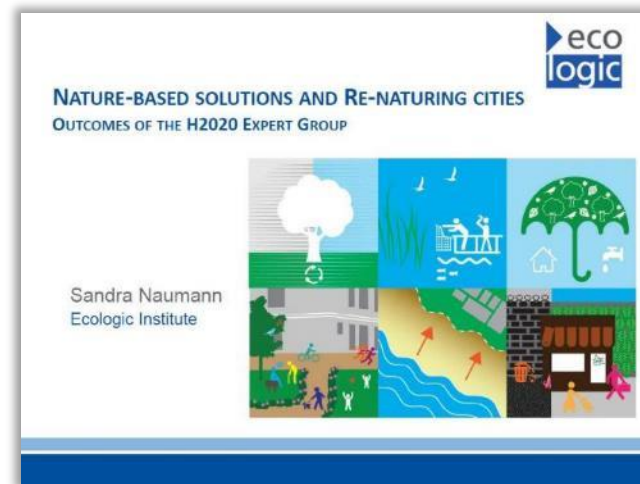
There are
8.4M
trees in London



NATURE-BASED SOLUTIONS

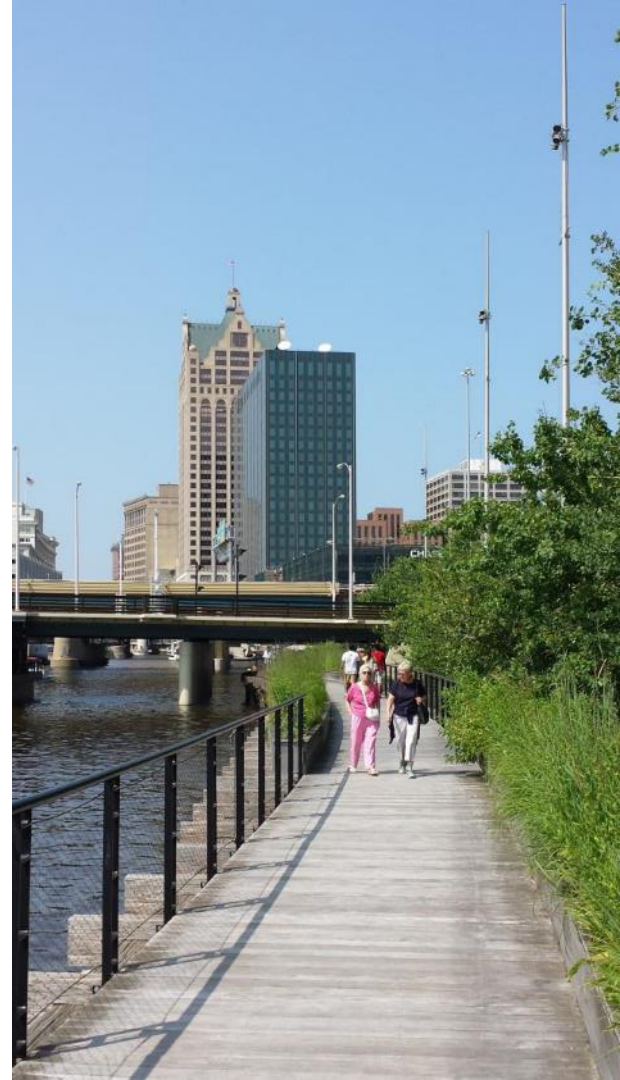


Nature-based solutions are understood as living solutions inspired by, continuously supported by and using nature, which are designed to address various societal challenges in a resource efficient and adaptable manner and to provide simultaneously economic, social and environmental benefits.



HURRAY FOR GI!

- Bridging between social and ecological systems
- **Raising the (political and planning) status of green space and tree issues**
- Speaking the “right language”
- Economic and service / value focus
- Linking between town and country



THE OTHER SIDE OF THE COIN...



RETENTION

DETENTION



CONSTRUCTED
WETLANDS



SUBSURFACE
STORAGE

BASF
SITE

PINO
SITE

BLOCK 12
SITE



GREEN ROOFS



RAINWATER
HARVESTING



BIOSWALES



STORMWATER
PLANTERS

INFILTRATION



A rectangular brass plaque is mounted on a weathered wooden bench using four screws. The plaque has a brushed metal finish and contains a four-line inscription in a simple, sans-serif font. The text is a humorous parody of a memorial plaque. The bench is made of dark, textured wood, and a large, dark, circular knot hole is visible to the right of the plaque. The background shows a blurred green lawn and some foliage.

In memory of
Roger Bucklesby.
Who hated this park,
and everyone in it.

Photo: Matilda van den Bosch





Seaside Greenway Completion and York Bikeway

Phase 1 of Point Grey-Cornwall Active Transportation Corridor



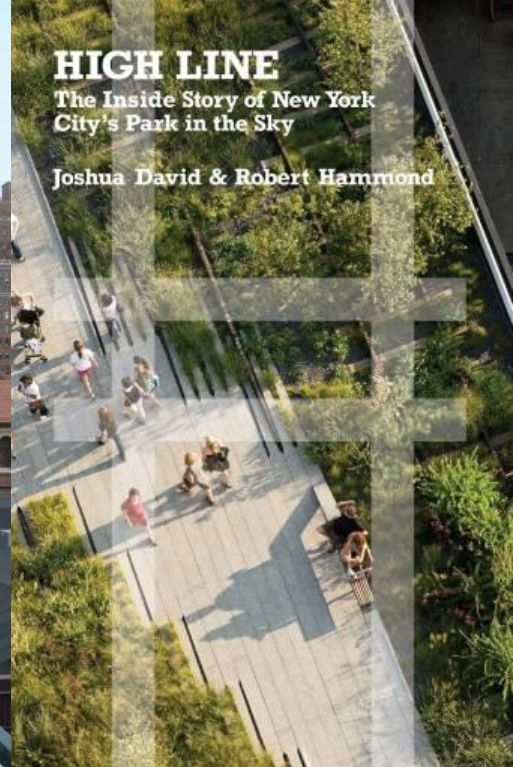
Cycling Route Priorities

-  Downtown Separated Lanes
-  Potential 2013 AAA Route
-  Potential 2014 AAA Route
-  Potential 2015-17 AAA Route
-  Potential 2014-17 AAA Retrofit



October 2012





HIGH LINE
The Inside Story of New York
City's Park in the Sky
Joshua David & Robert Hammon

HIGH LINE 



Browser window showing a Google search for "everyday landscape". The search results display a grid of images related to the topic, including various landscapes, architectural details, and book covers. The browser interface includes the address bar, search bar, and navigation buttons.

Address bar: https://www.google.se/search?q=everyday+landscape&hl=sv&rlz=1T4GGNI_svSE5485E549&tt

Search bar: everyday landscape

Navigation buttons: File, Edit, View, Favorites, Tools, Help

Logga in

Taskbar: Windows 7 interface showing various application icons (Internet Explorer, Firefox, Chrome, etc.) and the system clock (08:57, 2016-06-16).

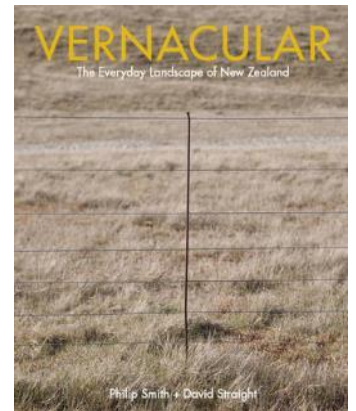




Photo: Georg Oddner

**My everyday (place) is not your
everyday (place)**



Source: Wikimedia



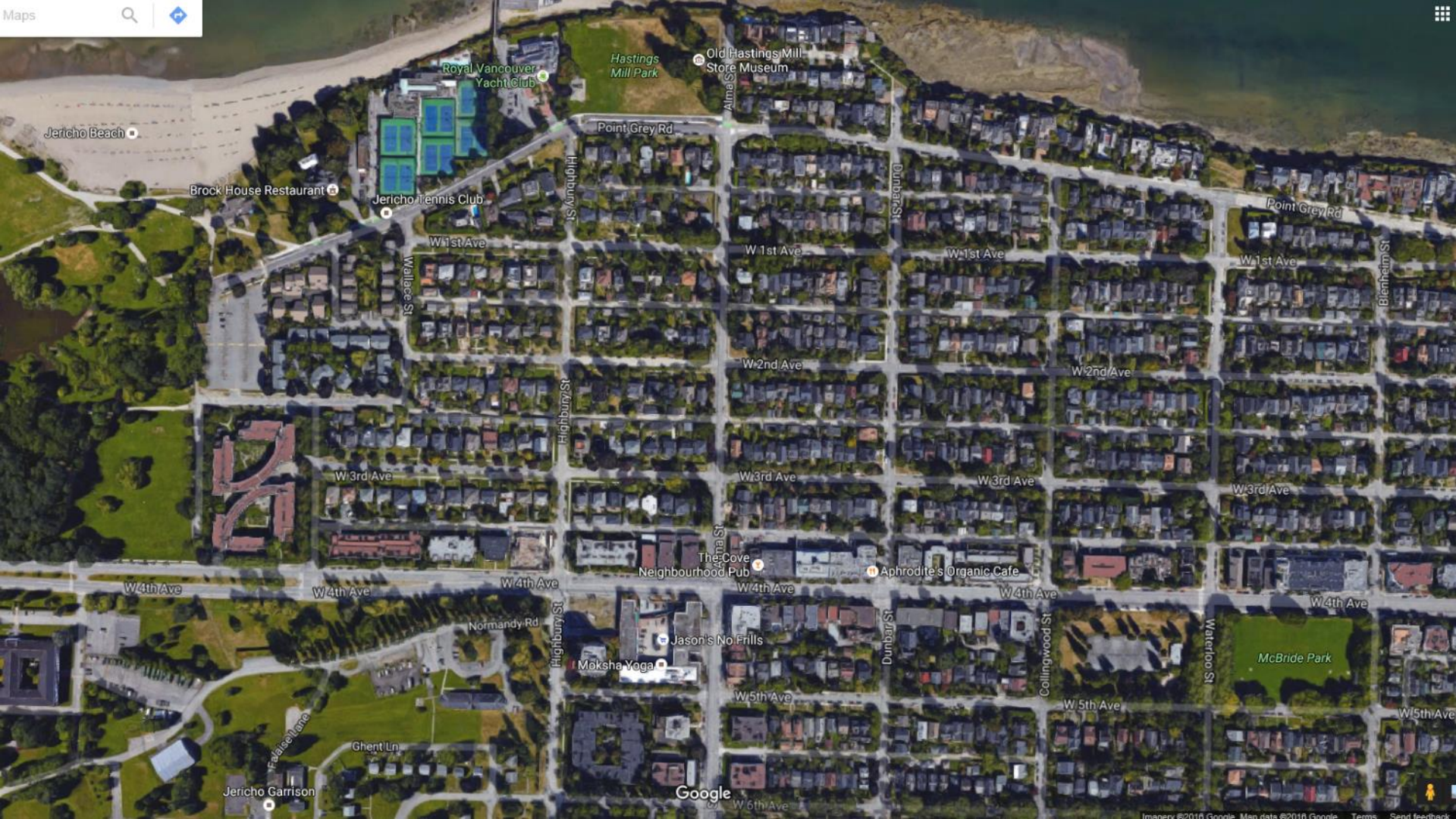


AP Photo/ Kerstin Joensson









Maps

Q

Jericho Beach

Brock House Restaurant

Jericho Tennis Club

W 1st Ave

Wallace St

Highbury St

Royal Vancouver Yacht Club

Hastings Mill Park

Point Grey Rd

Old Hastings Mill Store Museum

Alma St

Dunbar St

W 1st Ave

W 2nd Ave

W 3rd Ave

W 4th Ave

W 5th Ave

W 6th Ave

Blenheim St

Point Grey Rd

McBride Park

Waterloo St

Collingwood St

Aphrodite's Organic Cafe

The Cove Neighbourhood Pub

Jason's No Frills

Maksha Yoga

Normandy Rd

Ghent Ln

Palace Pl

Jericho Garrison

Google

Imagery ©2010 Google Map data ©2010 Google Terms Send feedback






čəsnaʔəm
the city before the city

KEEP A LOOKOUT

for INVASIVE PLANTS

The plant species on this list are recognized by the DNR as Invasive Species (IS), DNRIS, as the most serious threats to the integrity of DNR's resources.

in Door County!



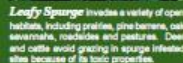
"Weeds of their word" (From left to right: purple loosestrife, common buckthorn, and lady spurge)

Plants Out of Place

Today, nearly every corner of the globe is impacted both economically and environmentally by invasive, exotic plants. Plants that occur outside of the area where they evolved are considered non-native or exotic. Occasionally, when plants are introduced into a new area, they become invasive and are able to flourish and replace the existing vegetation. This uncontrolled growth threatens native plant communities, degrades fish and wildlife habitat, restricts recreational activity, and reduces agricultural yields. Exotic weeds are becoming a considerable economic burden to everyone, and we all share the responsibility of preventing the spread of invasive, exotic plants.

What You Can Do:

- Learn to identify these and other invasive, exotic weeds
- Remove known invasive plants from your property and continue to check if plantings are invasive before you purchase them
- Educate friends, neighbors, and local nurseries about the problems caused by invasive, exotic plants
- If you find a weed infested area, inform the landowner or land manager so they can take steps to control the problem
- Avoid spreading exotic plants you may come in contact with while enjoying outdoor activities by removing seeds & plant fragments from clothing & equipment before leaving the area
- Never take plants from a wild area for transplanting or ornamental purposes if you aren't sure what they are!



Leafy Spurge invades a variety of open habitats, including prairie, pine barrens, oak savannah, roadsides and pastures. Deer and cattle avoid grazing in spurge infested sites because of its toxic properties.



Eurasian Watermilfoil invades our lakes, ponds and rivers. Dense mats shade out native aquatic plants, degrade wildlife habitat, and restrict boat access. Watermilfoil is commonly spread by plant fragments caught on boats and trailers.



Spotted Knapweed invades a variety of open habitats, including native grasslands, pine



Exotic Buckthorn invades forests, pastures, fireways and open areas. This small tree utilizes an extended growing season to shade out your native trees and

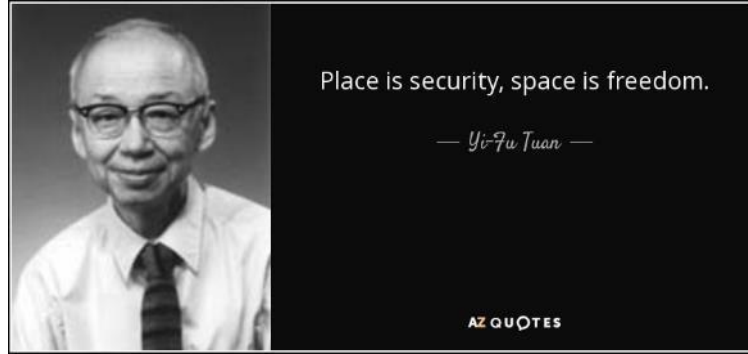


Purple Loosestrife invades wetlands, shorelines, wet meadows, and roadides. Dense stands of purple loosestrife reduce native food and cover plants the wildlife species depend on for survival.



Wild Parrot invades prairies, pine barrens, oak savannah, roadsides, and pastures. Grazing against this plant can make your site photo-sensitive and cause adverse reactions to sunlight, including blisters and burns.

For control information, consult the Wisconsin Manual of Control Techniques or the Biological Control of Weeds, released by the WI DNR. Sources of Invasive Species Resources, include the state of Wisconsin's Invasive Species, include the



**Everyday outdoor places –
places for living, working, playing,
... and more**

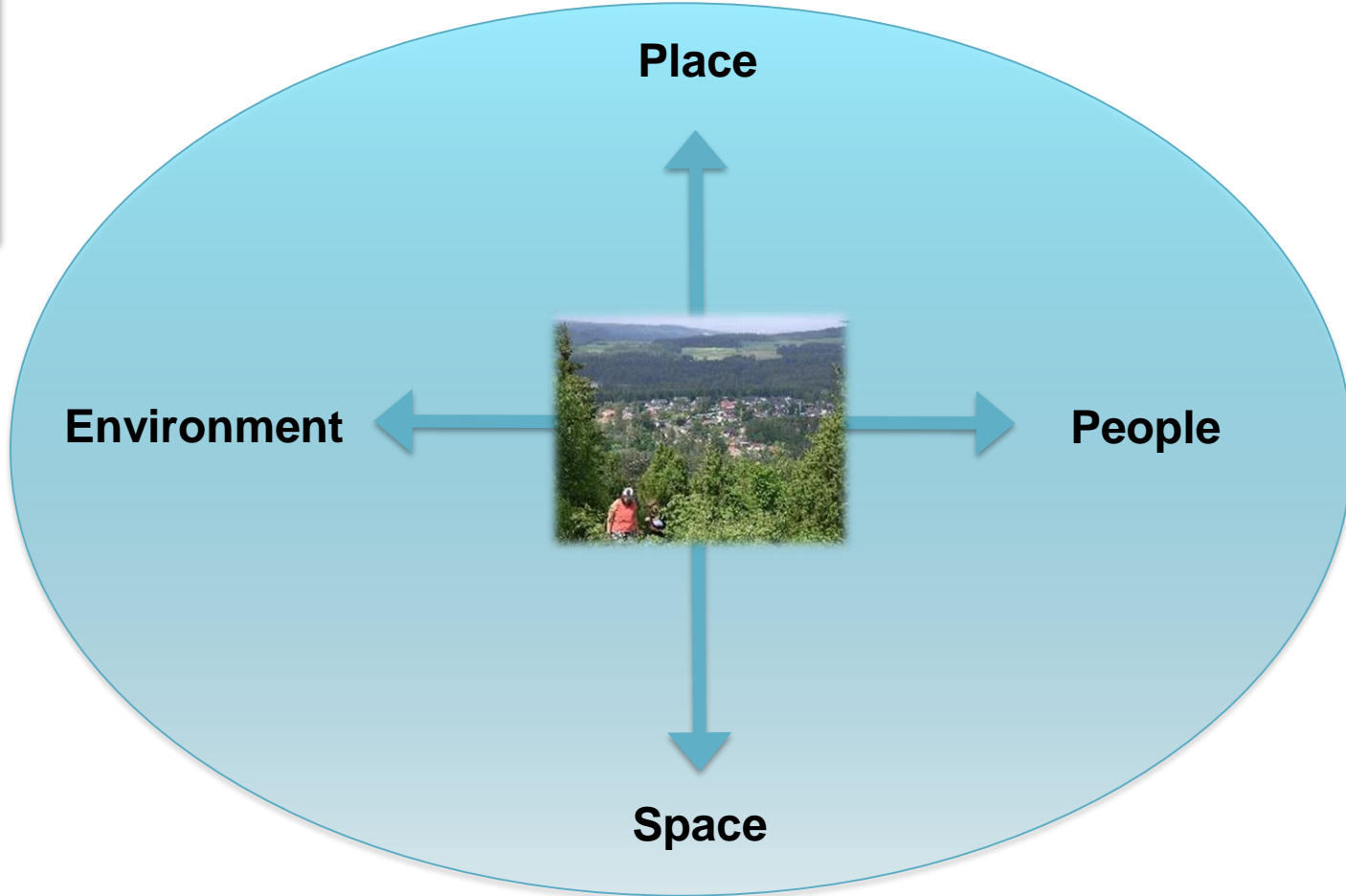
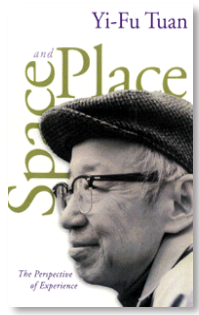
WHEN SPACE BECOMES PLACE

Featuring selected MAY 17, 2012
photographic works by: 7:00 - 10:00 pm

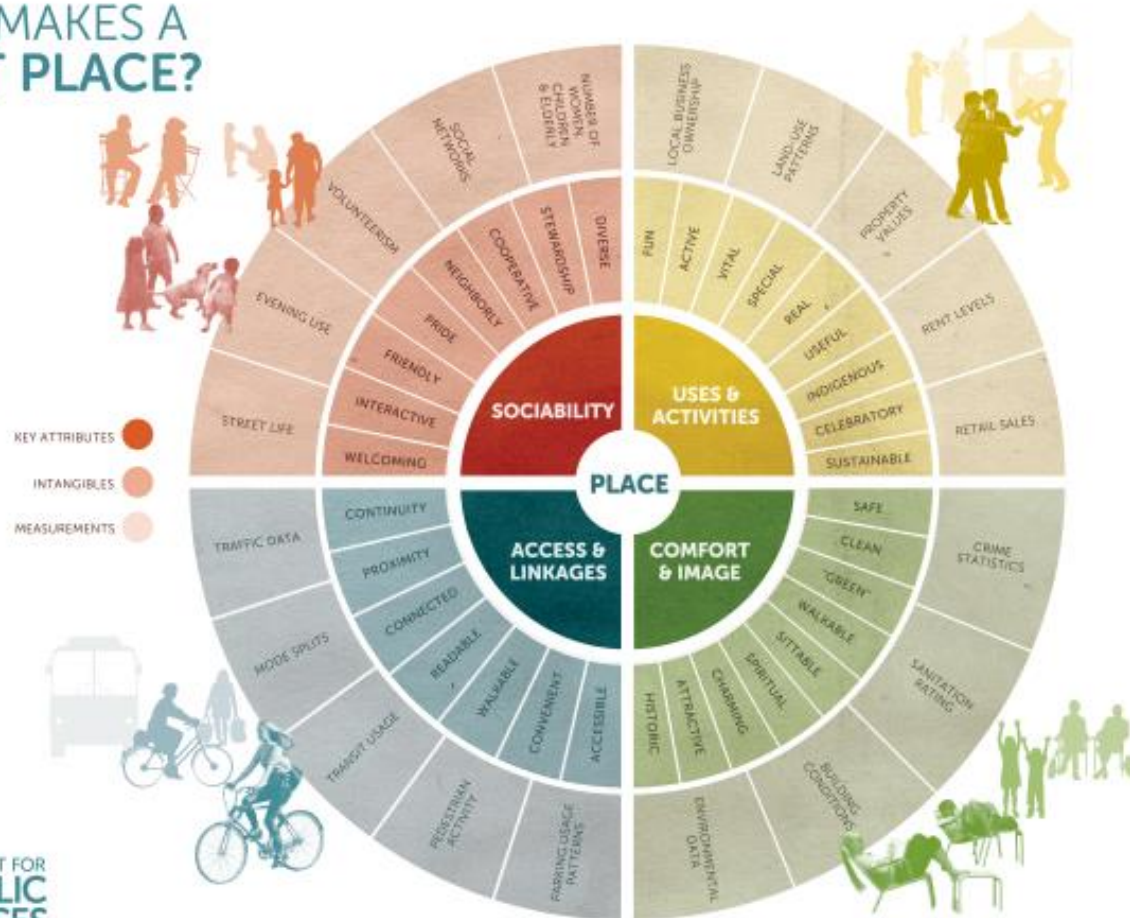
ADAM BATEMAN
MONIKA BRAVO
STEFAN HAGEN
JOSH WINEGAR

LIGHT SPOT
2927 S. Highland Dr.
Salt Lake City, Utah

mondo
fine art



WHAT MAKES A GREAT PLACE?



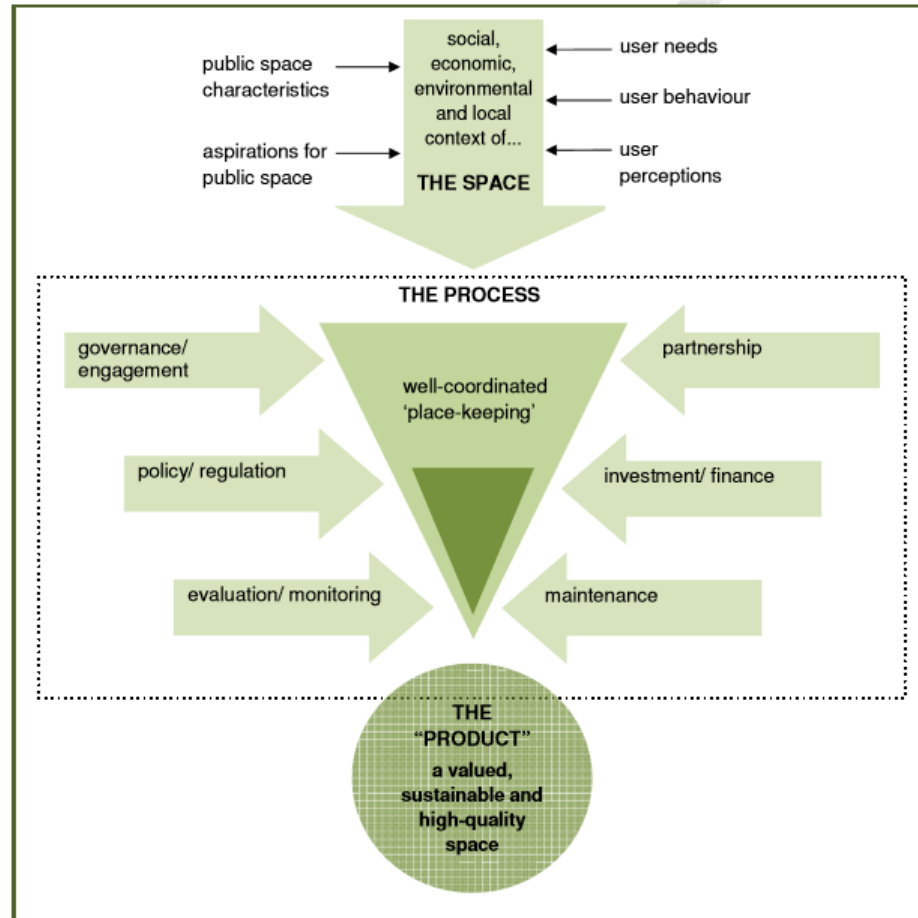
Place-Keeping

Open Space Management in Practice

Edited by
Nicola Dempsey, Harry Smith and
Mel Burton

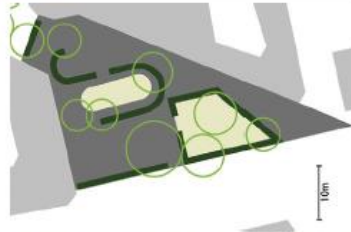


BookMa



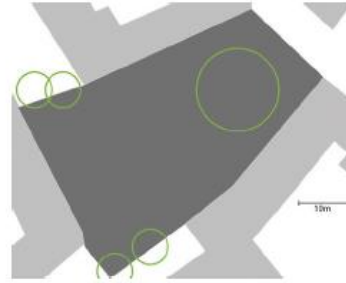
Description of the nine SPUGS included in the study (all photos taken by 1st author unless otherwise mentioned).

Bopa Plads
1127 m²



Category: Multi characteristic. Area consisting of trees, hedges and pavement. Many benches. A small playground, cafe zone and boules zone

Gråbrødre Torv
2569 m²



Category: Café/History. Paved area defined by houses. Cafe zones all along the edge. One big tree in the middle of the square as well as a water fountain

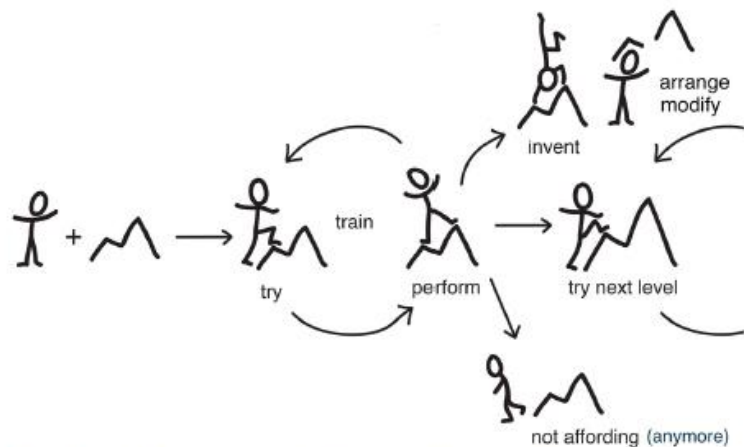


Figure 7. The cycle of trying, training, performing, creating, and continuing to new cycles as observed in this study.

Affordances = the meaningful action possibilities of the environment



FACULTY OF SCIENCE
UNIVERSITY OF COBRIDGE



PhD thesis
Inger Lerstrup

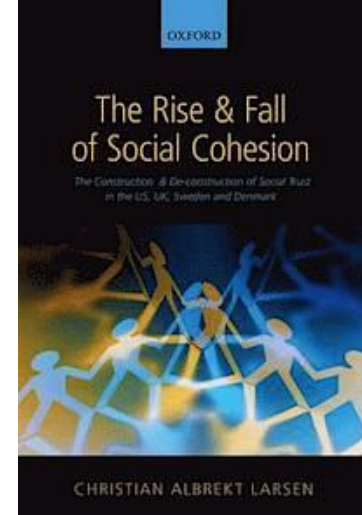
Green Settings for Children in Preschools
Affordance-based Considerations for Design and Management

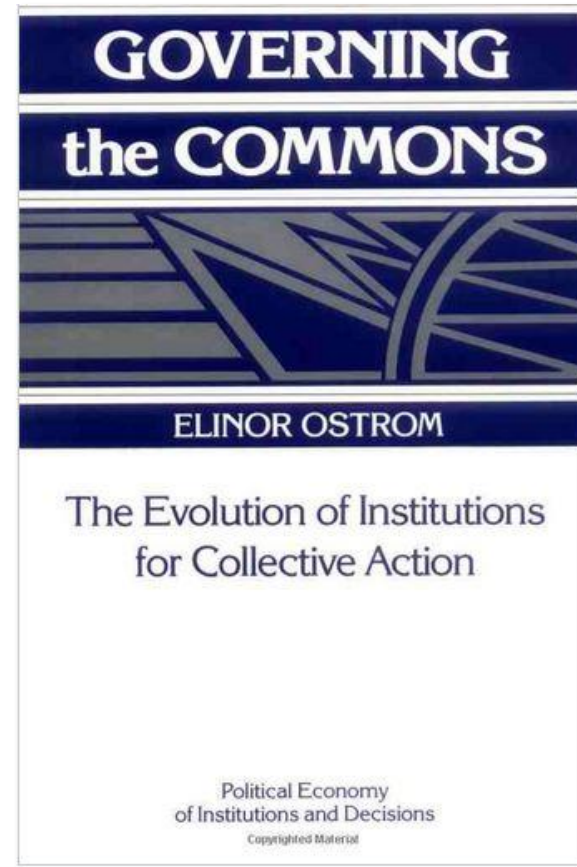
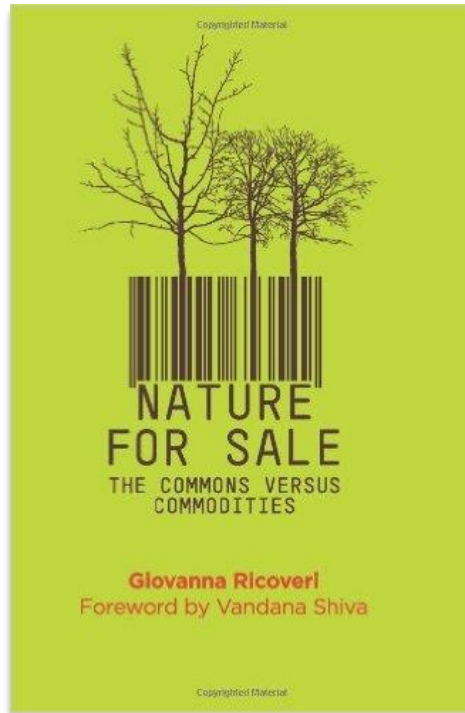


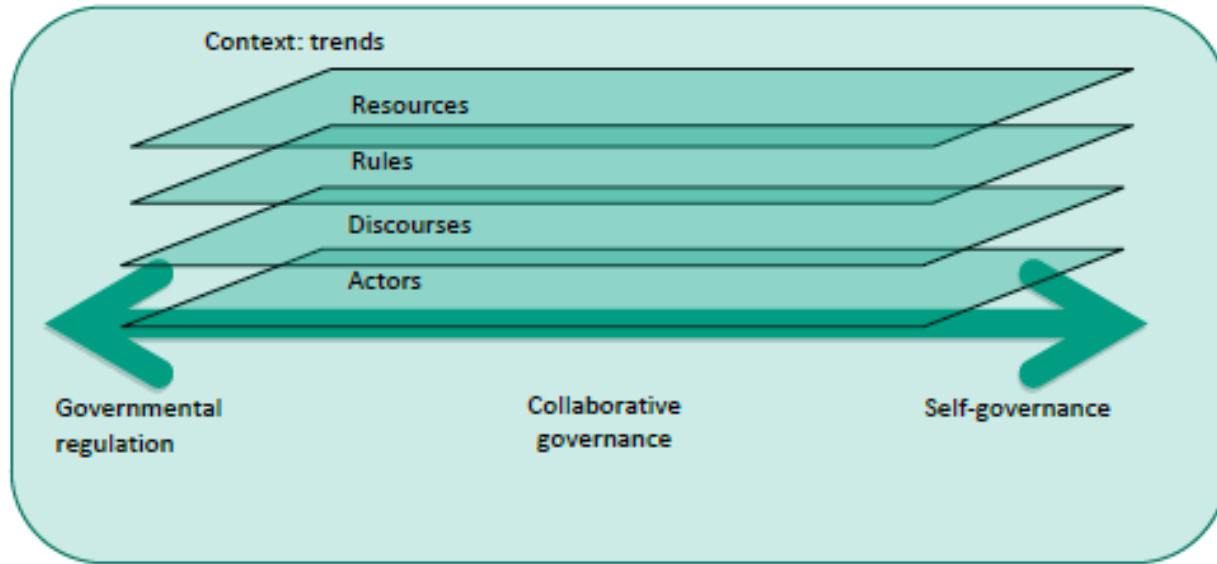
Academic advisor:
Cecil C. Konijnendijk van den Bosch

SOCIAL COHESION

- Beckley (2004): “the extent to which a geographical space achieves ‘community’ in the sense of shared values, cooperation and interaction”
- *Interactions* in daily life, e.g., across cultural / ethnic groups are crucial
- Green spaces provide ‘democratic’ and non-demanding settings for these interactions







Buizer et al. (2015)

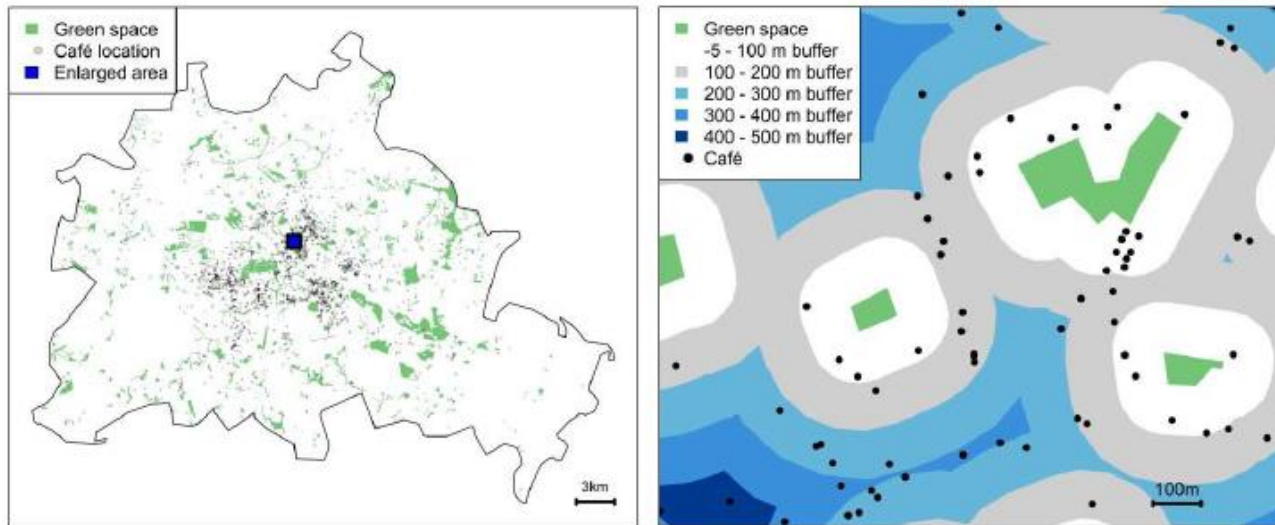


Figure 1: Green spaces and café locations in Berlin. The figure on the right shows buffer rings of 100 m around green spaces for an enlarged section.

... GREEN SURGE

CASH FLOWS GENERATED BY URBAN GREEN SPACES

Methods for identifying indirect values of UGI

WP 4

SRC, UL0D, UBER

Erik Andersson, Jakub Kronenberg, Dagmar Haase, Michael Strohbach, Nadja Kabisch, Gustav Engström, Piotr Czembrowski

Deliverable D4.2

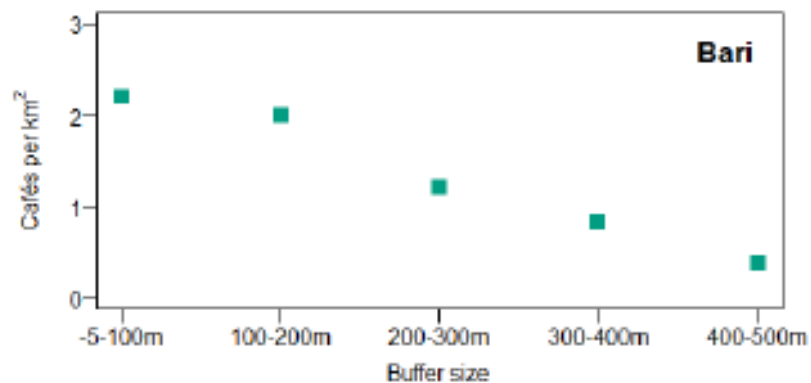
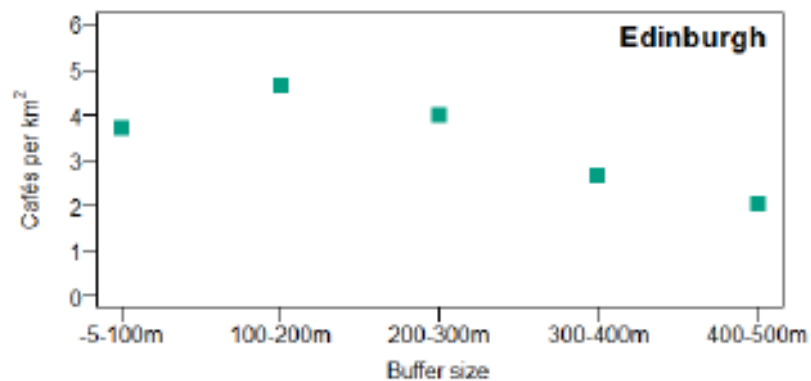


Figure 2: Café density in Bari in different distances around green spaces.





2/F

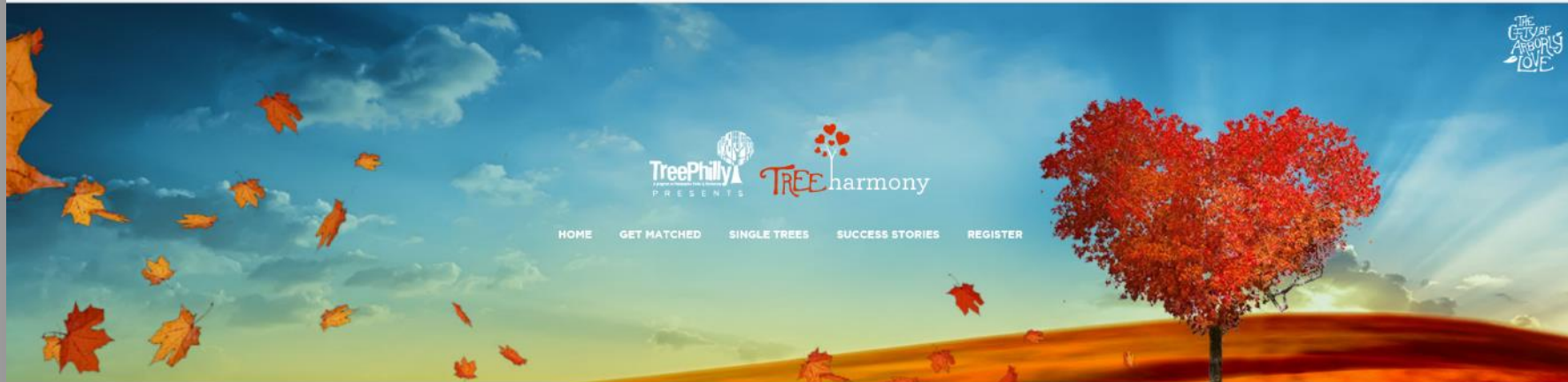
火府

婚宴專門店

Wedding Reception Specialist

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幸福中
EXPO

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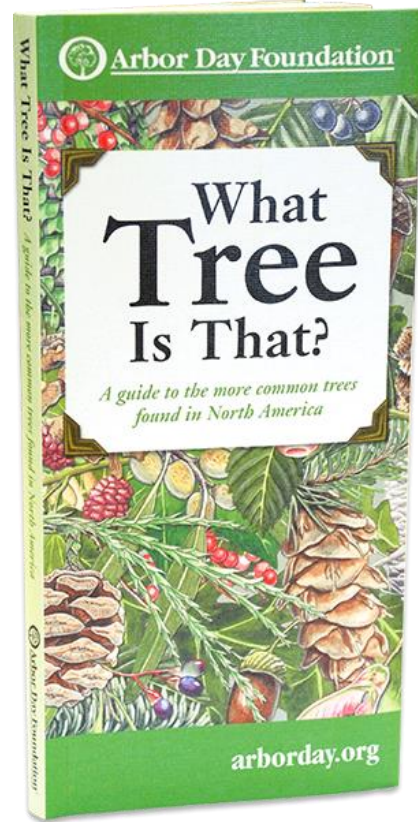
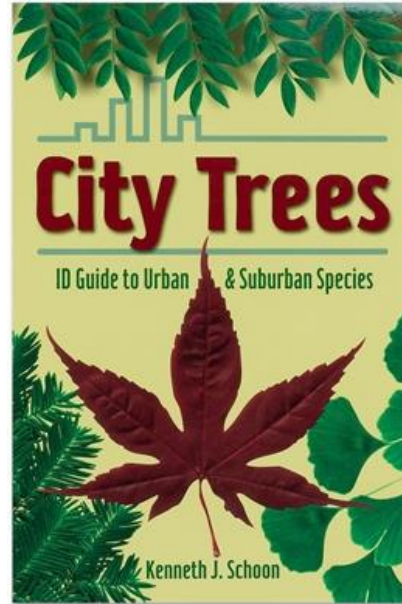
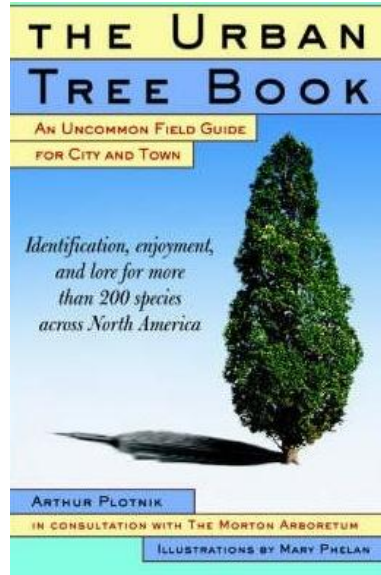
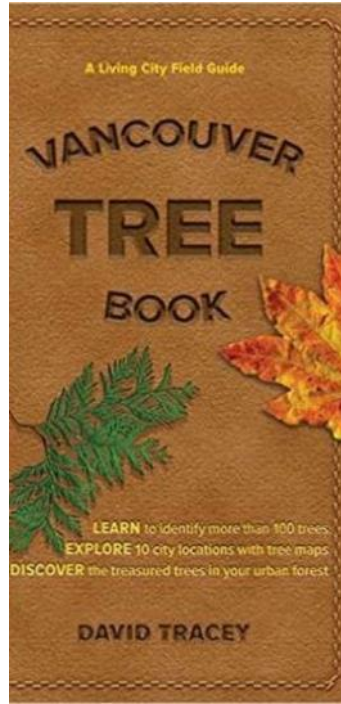
What's TreeHarmony?

TreeHarmony is the world's premier tree matching service (okay, it's the world's only tree matching service) and it's here to help you find the perfect tree companion. You see, TreePhilly wants to turn Philadelphia into the City of Arborly Love, so we give away a variety of trees every year to people who want them. But we aren't about to set you up with just any tree; we want to help you find your SoulTree. That's where TreeHarmony comes in. It's another dating site, only... with trees. Lovingly made by Philadelphia Parks & Recreation and supported by Wells Fargo and the Fairmount Park Conservancy.

[FIND YOUR MATCH](#)

I'm Cortana. Ask me anything.

10:50 AM
2016-09-23





Wikimedia Commons – Paul Symmington

Assessing and communicating animal disease risks for countryside users

Many people take great pleasure in spending time in the great outdoors and still more are being encouraged to visit green spaces to improve their health and well-being. Although considerable evidence supports the benefits of spending time in the countryside, little is known about how best to warn visitors of potential risks and encourage appropriate behaviour without causing alarm.

Research summary

An interdisciplinary research team is exploring the possible impact of zoonotic diseases on the development of recreation in rural areas, within an overarching framework of risk communication. The initial focus will be on Lyme disease (also known as Lyme borreliosis), an infectious disease caused by the bacterium *Borrelia burgdorferi* s.l. Lyme disease is found in a number of wild animal hosts and can be transferred to humans by infected ticks.



The study will:

- analyse scenarios for future risk of disease transmission;
- estimate the risk of encountering ticks in a range of habitats;
- develop an understanding of the risk perceived by public users and land managers;
- identify the possible responses of organisations and potential behavioural responses of individuals following precautionary advice;
- recommend methods for communicating precautionary information.

Study sites will represent remote upland woodland and wild land, accessible lowland woodland and farmland/heath, and peri-urban park and woodland.



Research outputs

The project will increase understanding of how individuals, groups and organisations perceive and respond to the risk of zoonotic diseases. The development of mathematical models will improve prediction of the

齊來把蚊減
預防日本腦炎登革熱



Prevent
Japanese Encephalitis
and Dengue Fever
Act Now!

舉報蚊患請致電
2868 0000
Please call 2868 0000 to
report mosquito nuisance

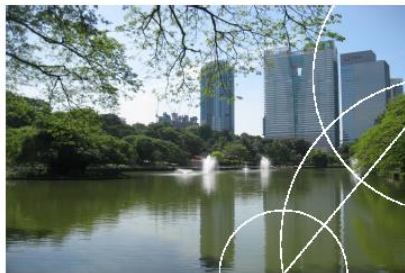


PhD thesis

Sreetheran Maruthaveeran

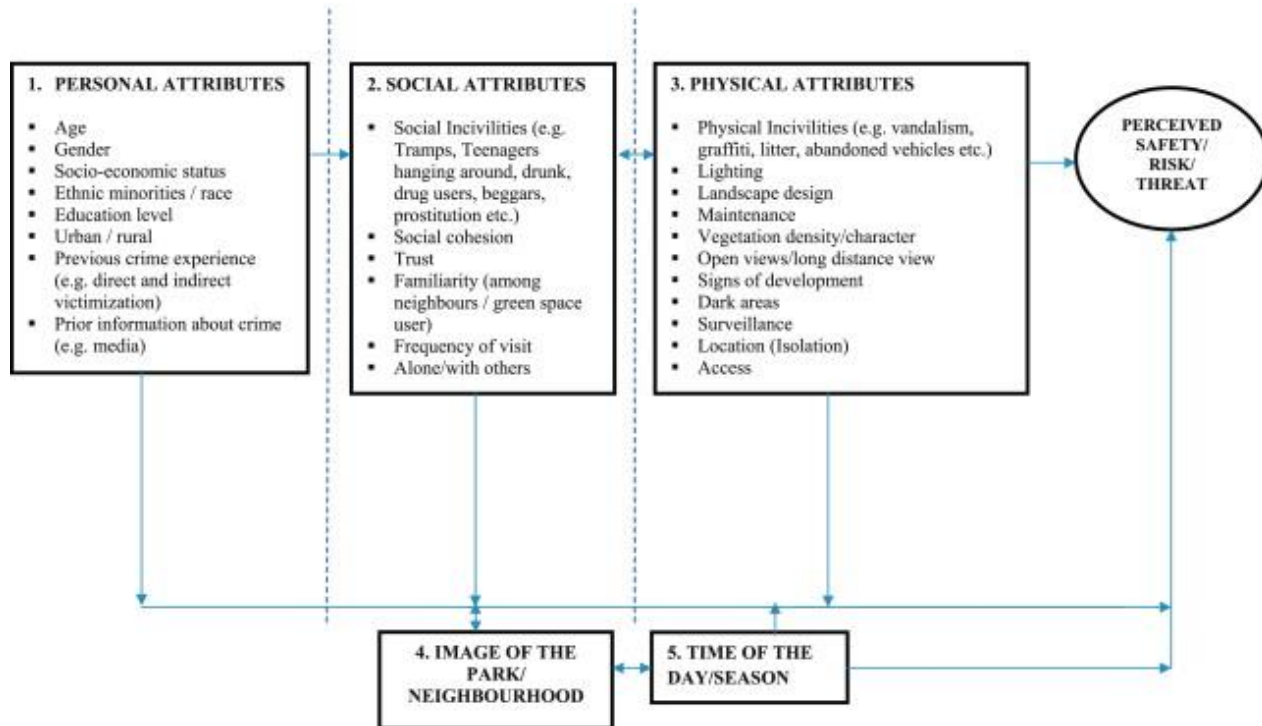
A socio-ecological exploration of fear of crime in urban green spaces

A case in Kuala Lumpur, Malaysia



Academic advisor: Prof. Dr. Cecil C. Konijnendijk van den Bosch

Submitted: 21/03/15





TAKE HOME MESSAGES

Place perspective needs to be added to green infrastructure approach

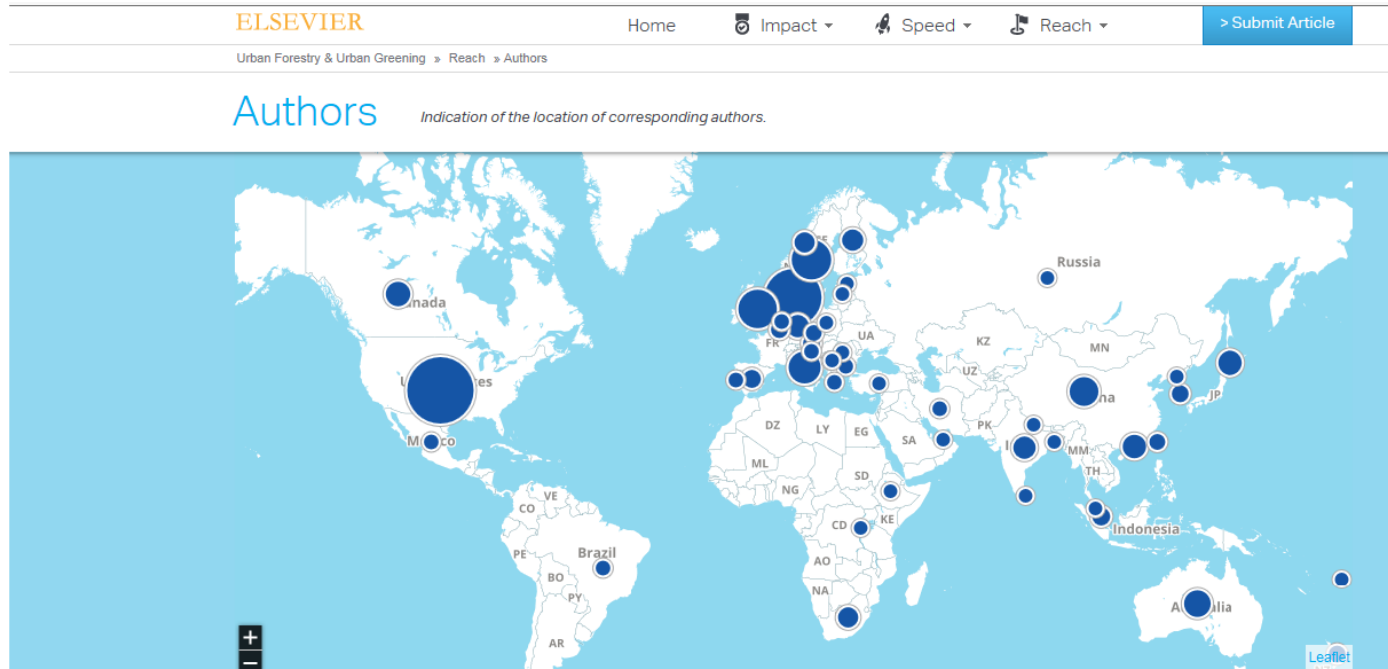
Place making, but especially also place keeping

Urban forestry is an excellent delivery mechanism for GI

And... in urban forestry, local contexts and local places vary widely



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