

Renforcer le rôle des arbres urbains en tant que solutions basées sur la nature

Mettre les connaissances au service de la planification et de la pratique

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@AnUrbanForester
cecil@nbsi.eu

À propos de cette présentation

- Prendre l'écologie urbaine au sérieux
- Les bénéfices (et les craintes)
- Gouvernance et politique
- Planification, conception et gestion
- Perspectives



Prendre l'écologie urbaine au sérieux



Urban Forestry & Urban Greening 34 (2018) 205–216

Contents lists available at ScienceDirect

Urban Forestry & Urban Greening

journal homepage: www.elsevier.com/locate/ufug

Review

The impact of ancient tree form on modern landscape preferences

Joseph B. Townsend^a, Susan Barton

Plant and Soil Sciences, Plant and Soil Sciences, University of Delaware, Newark DE 19716, United States

ARTICLE INFO

Keywords:
 Biophilia
 Evolutionary psychology
 Modularity
 Restoration
 Stress
 Tree climbing

ABSTRACT

Empirical studies of the relationship between aspects of the landscape and human emotions have been fruitful over the last few decades. In fact, we are awash in data that describes a correlation between natural landscapes and positive human feelings. While this plethora of data has been useful to various disciplines, it has not led to an explanatory theory as to why and how the landscape should have this effect. This paper proposes that the discipline of evolutionary psychology provides an explanatory theory. Rather than a broad explanation, evolutionary psychology drills down on ancient problems of survival and relates those problems to contemporary behavior. Our connection to tree canopy is used as an example of this approach.

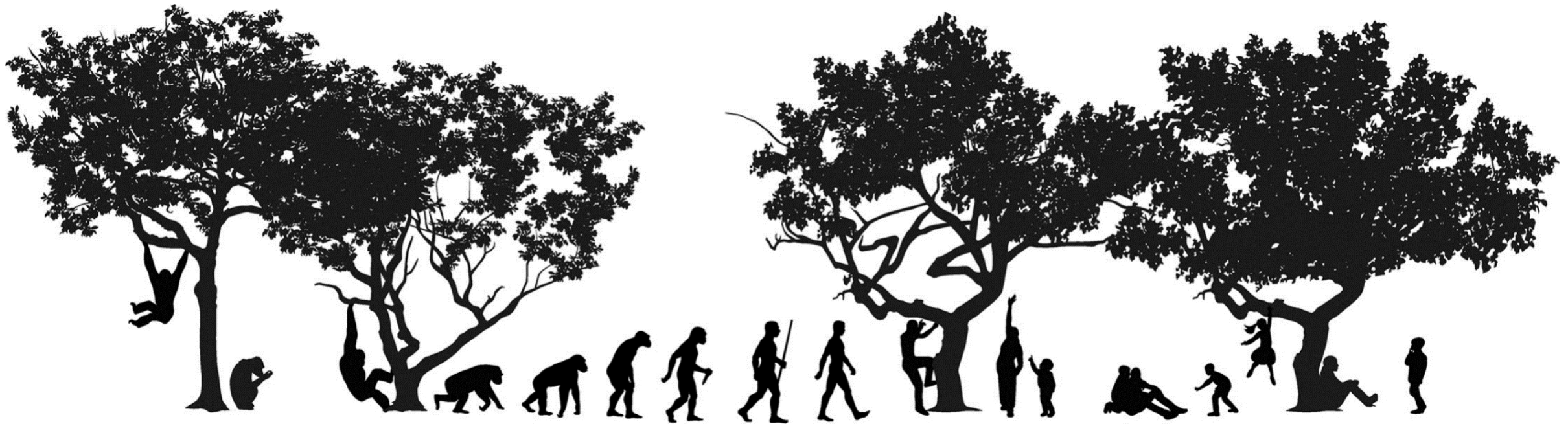
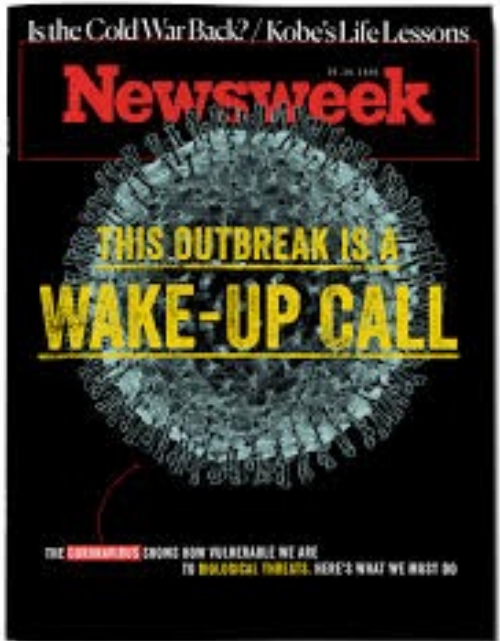


Illustration par Cathy Bedenbaugh à Townsend et Barton (2018)



Les solutions basées sur la nature pour répondre aux défis sociétaux sont *des solutions inspirées et soutenues par la nature*, qui présentent un bon rapport coût-efficacité, apportent à la fois des avantages environnementaux, sociaux et économiques et contribuent à renforcer la résilience.

(Commission européenne)

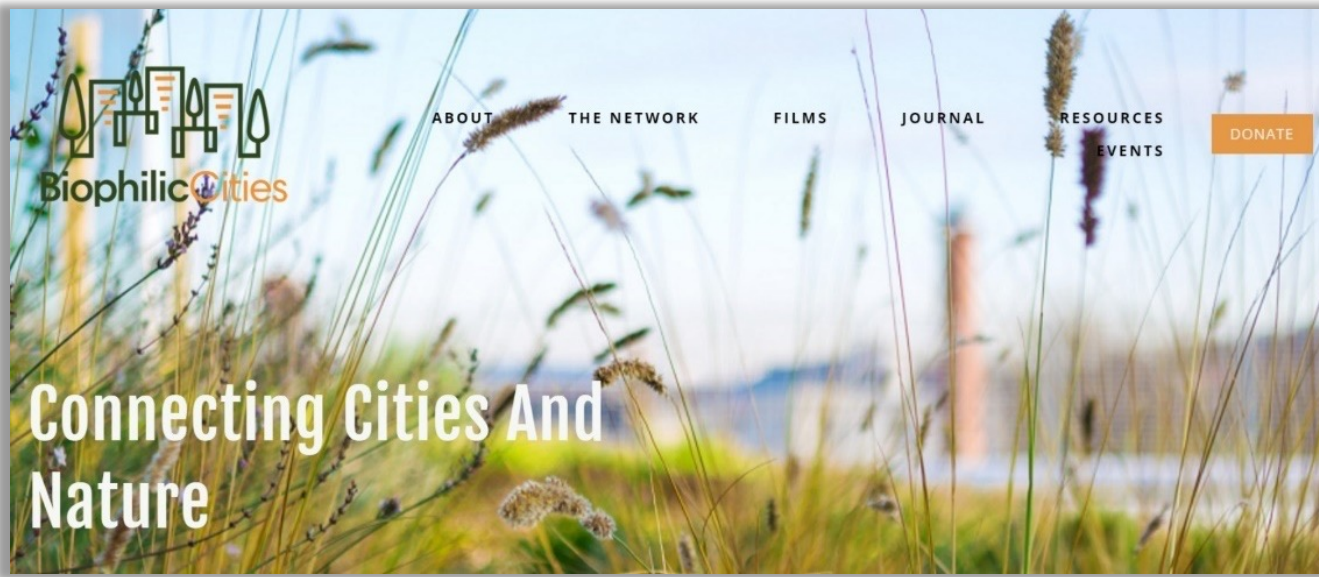
Les solutions basées sur la nature sont des "actions visant à *protéger, gérer de manière durable et restaurer* des écosystèmes naturels ou modifiés pour relever directement *les défis de société* de manière efficace et adaptative, tout en assurant le *bien-être humain* et en produisant des *bénéfices pour la biodiversité*"

(Union internationale pour la conservation de la nature - UICN)



<https://landuse.co.uk/nature-based-solutions-and-climate-change/>





ABOUT

THE NETWORK

FILMS

JOURNAL

RESOURCES

EVENTS

DONATE

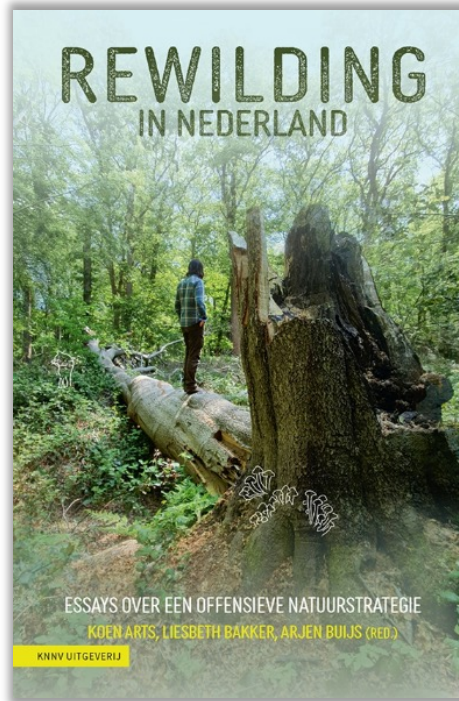
Connecting Cities And Nature



FINDING THE MOTHER TREE

Discovering the
Wisdom of the Forest

SUZANNE SIMARD



REWILDING IN NEDERLAND

ESSAYS OVER EEN OFFENSIEVE NATUURSTRATEGIE
KOEN ARTS, LIESBETH BAKKER, ARJEN BUIJS (RED.)

KNNV UITGEVERIJ





Pensées axées sur la nature

Incarner une ouverture d'esprit qui fonctionne de façon cyclique entre les différents secteurs, disciplines et niveaux de gouvernance.

Faire de la place pour la nature même dans les zones urbaines les plus denses.

Il ne s'agit pas seulement de mettre en œuvre des SNB (solutions basées sur la nature) plutôt que des infrastructures conventionnelles en ayant à l'esprit des résultats souhaités et établis, mais aussi permettre des avantages moins prévisibles et des expérimentations pour les découvrir dans une perspective à long terme.

Randrup et al. (2020)

Foresterie urbaine

L'art, la science et la technologie de la gestion des arbres et des ressources forestières dans et autour des écosystèmes urbains communautaires pour les bénéfices physiologiques, sociologiques, économiques et esthétiques qu'ils procurent à la société.

(Helms 1998, basé sur Miller 1997)

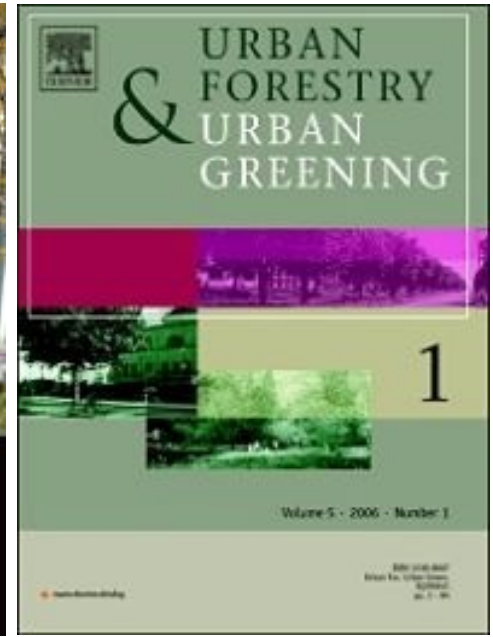
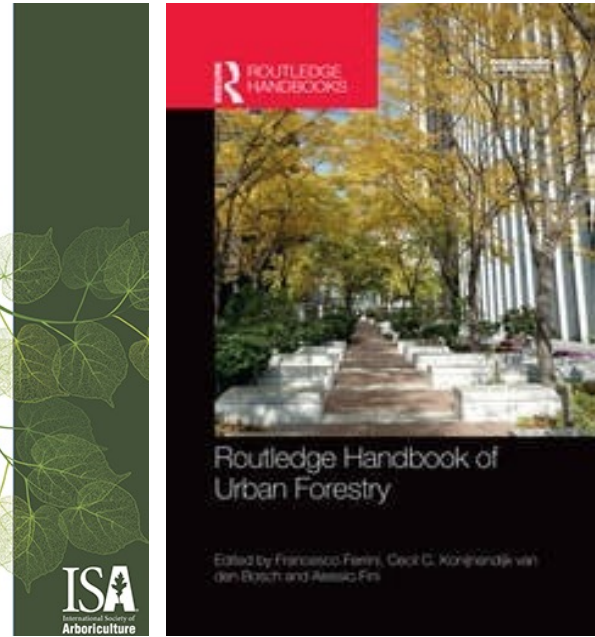
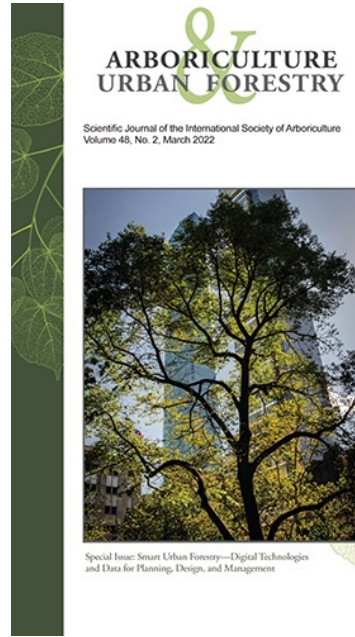




**World Forum on
Urban Forests**



UBC Forestry
**MASTER OF
URBAN FORESTRY
LEADERSHIP (MUFL)**



**Bénéfices
(et certaines
craintes)**



INNER FORESTS

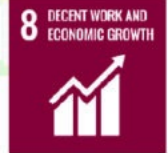
Cooler Cities
Less Noise Pollution
Access To Nature
Better Health

NEARBY FORESTS

Clean Water
Reduced Flooding
Less Soil Erosion
Recreation In Nature

FARAWAY FORESTS

Carbon Sequestration
Responsible Timber
Medicinal Compounds
Biological Diversity



Sustainable Urban and Peri-urban Forestry

An Integrative and Inclusive Nature-Based Solution for Green Recovery and Sustainable, Healthy and Resilient Cities
Policy Brief





Scale-dependent interactions between tree canopy cover and impervious surfaces reduce daytime urban heat during summer

Carly D. Ziter, Eric J. Pedersen, Christopher J. Kucharik, and Monica G. Turner

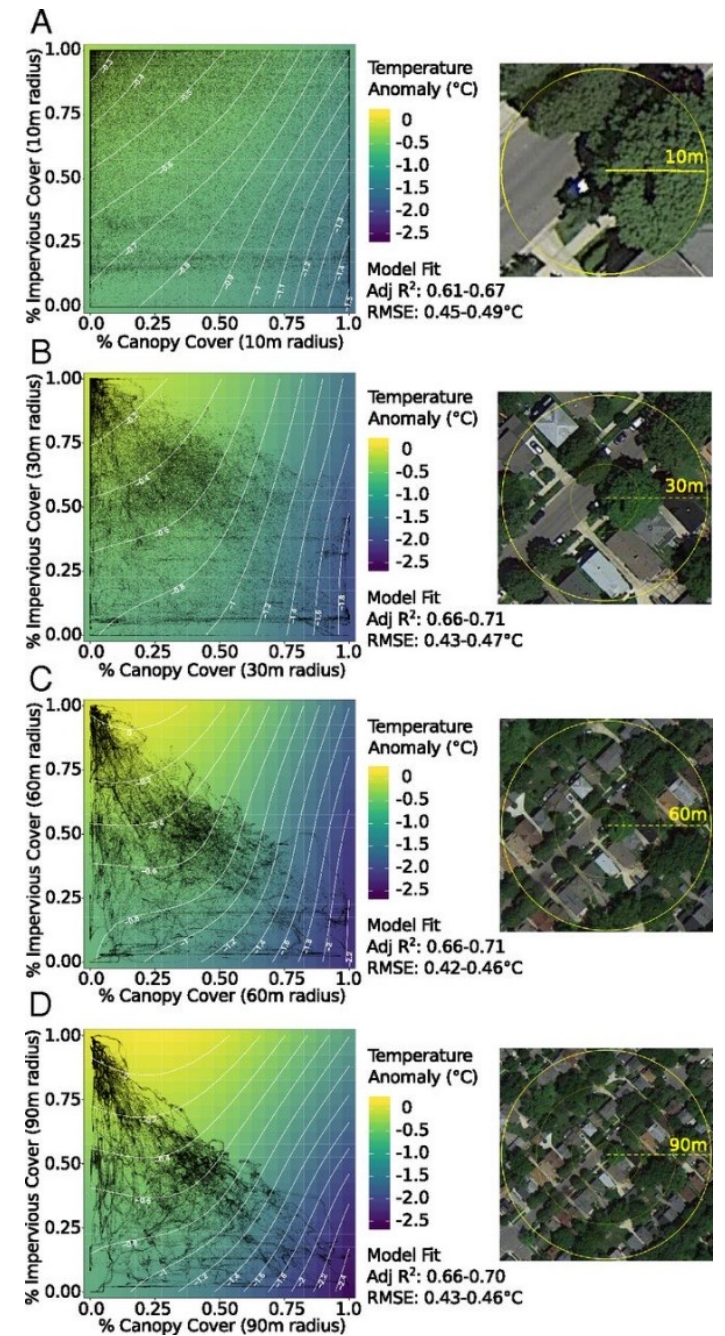
+ See all authors and affiliations

PNAS April 9, 2019 116 (15) 7575-7580; first published March 25, 2019; <https://doi.org/10.1073/pnas.1817561116>



Significance

Cities worldwide are experiencing record-breaking summer air temperatures, with serious consequences for people. Increased tree cover is suggested as a climate adaptation strategy, but the amount of tree canopy cover needed to counteract higher temperatures associated with impervious surface cover is not known. We used a bicycle-mounted measurement system to quantify the interaction of canopy cover and impervious surface cover on urban air temperature. Daytime air temperature was substantially reduced with greater canopy cover ($\geq 40\%$) at the scale of a typical city block (60–90 m), especially on the hottest days. However, reducing impervious surfaces remained important for lowering nighttime temperatures. Results can guide strategies for increasing tree cover to mitigate daytime urban heat and improve residents' well-being.



Plus de 4 % de la mortalité estivale dans les villes européennes est imputable aux îlots de chaleur urbain



30%

Augmenter la **couverture de la canopée** dans les villes à **30%**



Peut réduire la **température** des environnements urbains jusqu'à **1.3 degrés**



et prévenir **1/3 des décès prématurés** imputables aux îlots de chaleur urbains en été

Source: Iungman T., et al., *The Lancet*, 2023.





EMPLOYMENT

More than **500,000** people are employed as a result of urban forestry activities.



INVESTMENT

Communities enrolled in the Tree City USA® program invested an average of **\$7.37 per resident** in tree planting and care in 2017, compared to just **\$3.00 per resident** in nonparticipating communities.



ECONOMY

The urban forestry sector has an annual sales and employment footprint worth **\$64 billion.**

<https://www.arborday.org/urban-forestry-economic/>



More than **60%** of people in European cities lives in areas with insufficient green space



Increasing overall greenness could prevent **up to almost 43,000 deaths** in European cities every year.

<https://isglobalranking.org/>

Exposure to natural space, sense of community belonging, and adverse mental health outcomes across an urban region

Emily J. Rugel ^a, Richard M. Carpiano ^{b, c, d}, Sarah B. Henderson ^{b, e}, Michael Brauer ^a

> *J Expo Sci Environ Epidemiol.* 2019 Jun;29(4):447-456. doi: 10.1038/s41370-018-0017-1. Epub 2018 Jan 19.

Evaluating street view exposure measures of visible green space for health research

Andrew Larkin ¹, Perry Hystad ²

Affiliations + expand

PMID: 29352209 DOI: 10.1038/s41370-018-0017-1

> *Environ Res.* 2020 Jul;186:109614. doi: 10.1016/j.envres.2020.109614. Epub 2020 May 1.

Different types of urban natural environments influence various dimensions of self-reported health

Ingrid Jarvis ¹, Mieke Koehoorn ², Sarah E Gergel ³, Matilda van den Bosch ⁴

Affiliations + expand

PMID: 32668554 DOI: 10.1016/j.envres.2020.109614

the NATURE FIX



*Why Nature Makes Us Happier,
Healthier, and More Creative*

FLORENCE WILLIAMS





ELSEVIER

Available online at www.sciencedirect.com

ScienceDirect

Current Opinion in
Environmental
Sustainability



Nature's disvalues: what are they and why do they matter?

Bosco Liso¹, Dominic Lenzi², Barbara Muraca³,
Kai MA Chan⁴ and Unai Pascual^{1,5,6}

Figure 3

Values of supporters	<ul style="list-style-type: none"> • Instrumental value: e.g. Predators are keystone species that regulate ecosystems • Intrinsic value: e.g. Predators have a right to exist undisturbed • Relational value: e.g. Predators are perceived as kin; protecting predators is a fulfilment of obligations of responsibility 	
Disvalues of detractors	<ul style="list-style-type: none"> • Instrumental disvalue: e.g. Predators kill livestock and threaten livelihoods • Intrinsic disvalue: e.g. Predators are intrinsically bad and can be eliminated • Relational disvalue: e.g. Predators are perceived as a threat to a flourishing life; not being able to attend to predators impedes relational obligations towards livestock 	

Current Opinion in Environmental Sustainability

Examples of how values and disvalues are expressed and mapped onto the arguments of supporters and detractors of large predators in the wild.

Gouvernance et politique



LONDON NATIONAL PARK CITY*

GREATER LONDON NATIONAL PARK CITY:

A talk by Daniel Raven-Ellison

Wednesday 24th June 2015,
The Honor Oak Pub (upstairs) 7pm to 9pm

Daniel Raven-Ellison, a founder of this project, will talk about the vision to create a Greater London National Park City. Officially a notional national park*, followed by Q & A.



Finnish NUP Concept - from vision to practice:

II The first vision

The first Finnish National Urban Park was established in 2001 in Hämeenlinna on the basis of the 1997 vision. At the time, we had no legislation for national urban parks.

Vision of 1997

The National Urban Park in Hämeenlinna

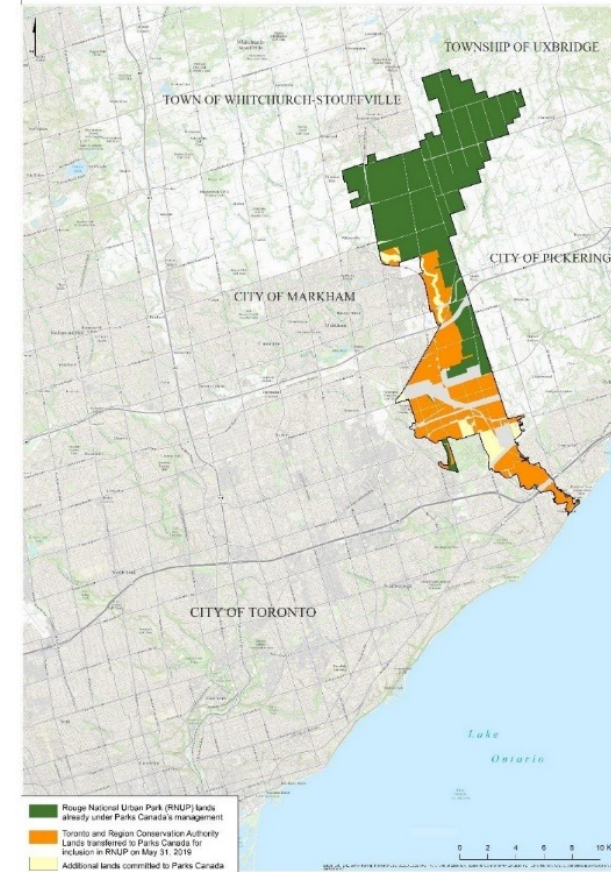


The City of Hämeenlinna 1997

Outline of the 2001 Decision of the NUP



ROUGE NATIONAL URBAN PARK AREA





SG GREEN PLAN

City in Nature

Green, Liveable and Sustainable Home for Singaporeans

- ✔ Plant 1 million more trees, and have every household within a 10-minute walk from a park by 2030
- ✔ Develop over 130 ha of new parks, and enhance around 170 ha of existing parks with more lush vegetation and natural landscapes by end-2026
- ✔ Add 1000ha of green spaces by 2035

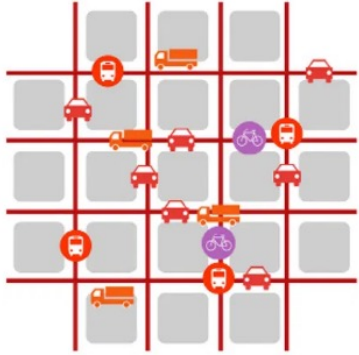
Sustainability

Strengthen

- ✔ Introduce Progre educa
- ✔ Work net ca sector
- ✔ At least neutra
- Green C
- ✔ 75% o

SUPERBLOCKS MODEL

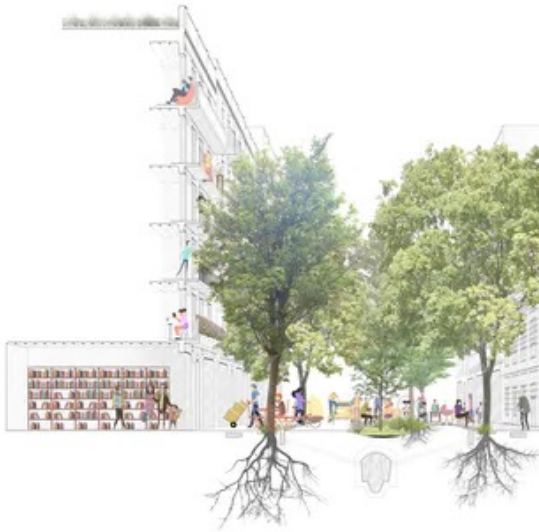
Current Model



Superblock



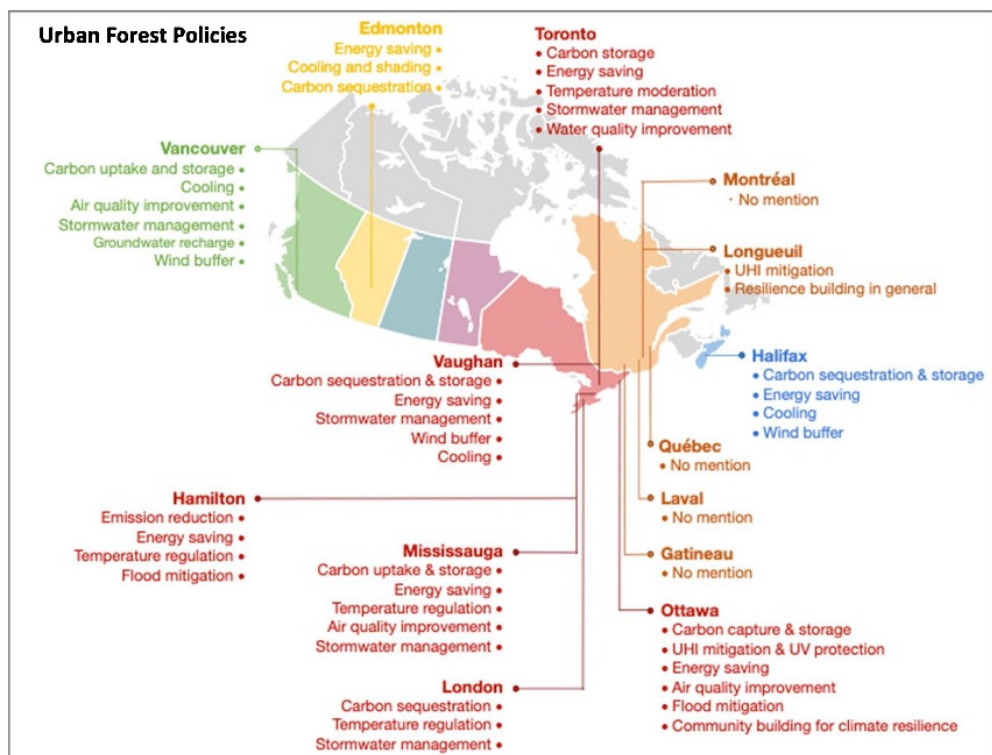
- PUBLIC TRANSPORT NETWORK
- BICYCLES MAIN NETWORK (BIKE LANE)
- BICYCLES SIGNPOSTS (REVERSE DIRECTION)
- FREE PASSAGE OF BICYCLES
- PRIVATE VEHICLE PASSING
- RESIDENTS VEHICLES
- URBAN SERVICES AND EMERGENCY
- DUM CARRIERS



Source: Barcelona City Hall

Alignment of municipal climate change and urban forestry policies: A Canadian perspective

Zhaohua Cheng ^a, Sophie Nitoslawski ^a, Cecil Konijnendijk van den Bosch ^a, Stephen Sheppard ^a, Lorien Nesbitt ^a, Cynthia Girling ^b



Municipality	CC Impacts on UF	UF Benefits in CC Mitigation / Adaptation	UF-Related or CC-Related Action
Toronto	Light Green	Dark Green	Dark Green
Montreal	Light Green	Light Green	Dark Green
Calgary	Light Green	Light Green	Light Green
Ottawa	Dark Green	Dark Green	Light Green
Edmonton	Light Green	Light Green	Light Green
Mississauga	Dark Green	Dark Green	Dark Green
Winnipeg	Light Green	Light Green	Light Green
Vancouver	Dark Green	Dark Green	Dark Green
Brampton	Light Green	Light Green	Light Green
Hamilton	Light Green	Light Green	Light Green
Quebec	Light Green	Light Green	Light Green
Surrey	Light Green	Light Green	Light Green
Laval	Light Green	Light Green	Light Green
Halifax	Dark Green	Dark Green	Dark Green
London	Light Green	Light Green	Light Green
Markham	Light Green	Light Green	Light Green
Vaughan	Dark Green	Dark Green	Light Green
Gatineau	Light Green	Light Green	Light Green
Saskatoon	Light Green	Light Green	Light Green
Longueuil	Light Green	Light Green	Light Green

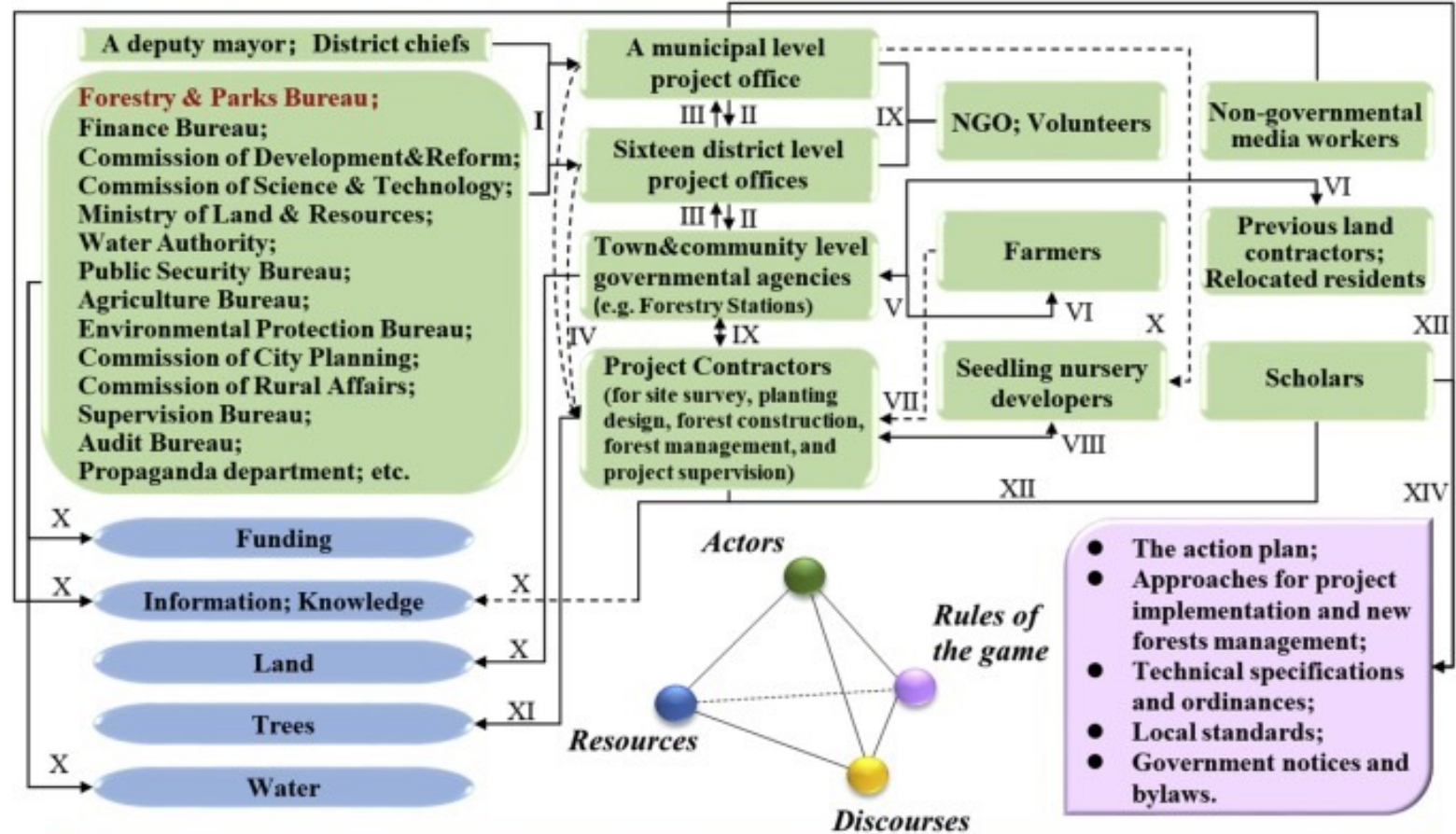
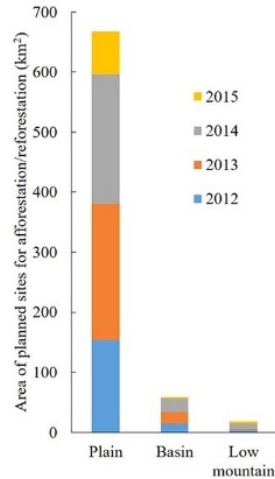
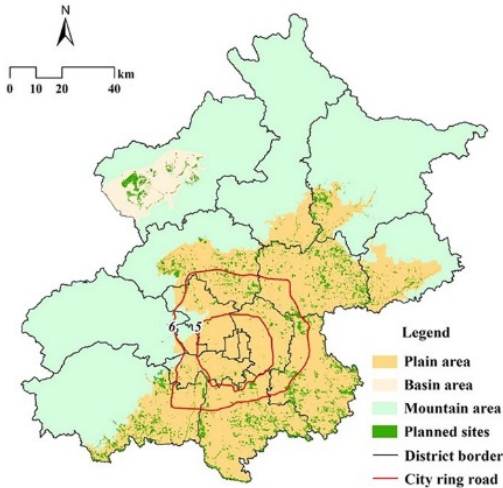
Level of Alignment	N/A (No CC and/or UF policy)	None (Nothing in common)	Weak (less than 1/3 aligned)	Medium (1/3 to 2/3 aligned)	Strong (More than 2/3 aligned)
Color Label	Light Green	Light Green	Light Green	Dark Green	Dark Green

Cells are colour-coded to indicate different levels of alignment (approx. level of similar topics and information covered). See the colour legend below.

Original article

Beijing's 50 million new urban trees: Strategic governance for large-scale urban afforestation

Na Yao ^{a, b}, Cecil C. Konijnendijk van den Bosch ^b, Jun Yang ^c, Tahia Devisscher ^b, Zach Wirtz ^b, Liming Jia ^a, Jie Duan ^{a, d}, Lvyi Ma ^{a, d}



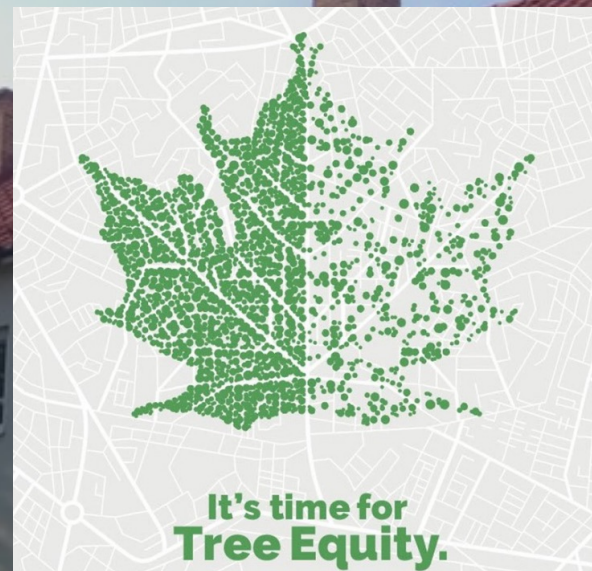
A) Reverse the deficiency of forest cover in Beijing's plain area and set up a 'green' image for the capital city; B) Improve urban forests' ecological services in Beijing; C) Promote residents' livelihood and boost ecological civilization; D) Industry relocation, population decentralization, ecological restoration, landscape renovation, etc.

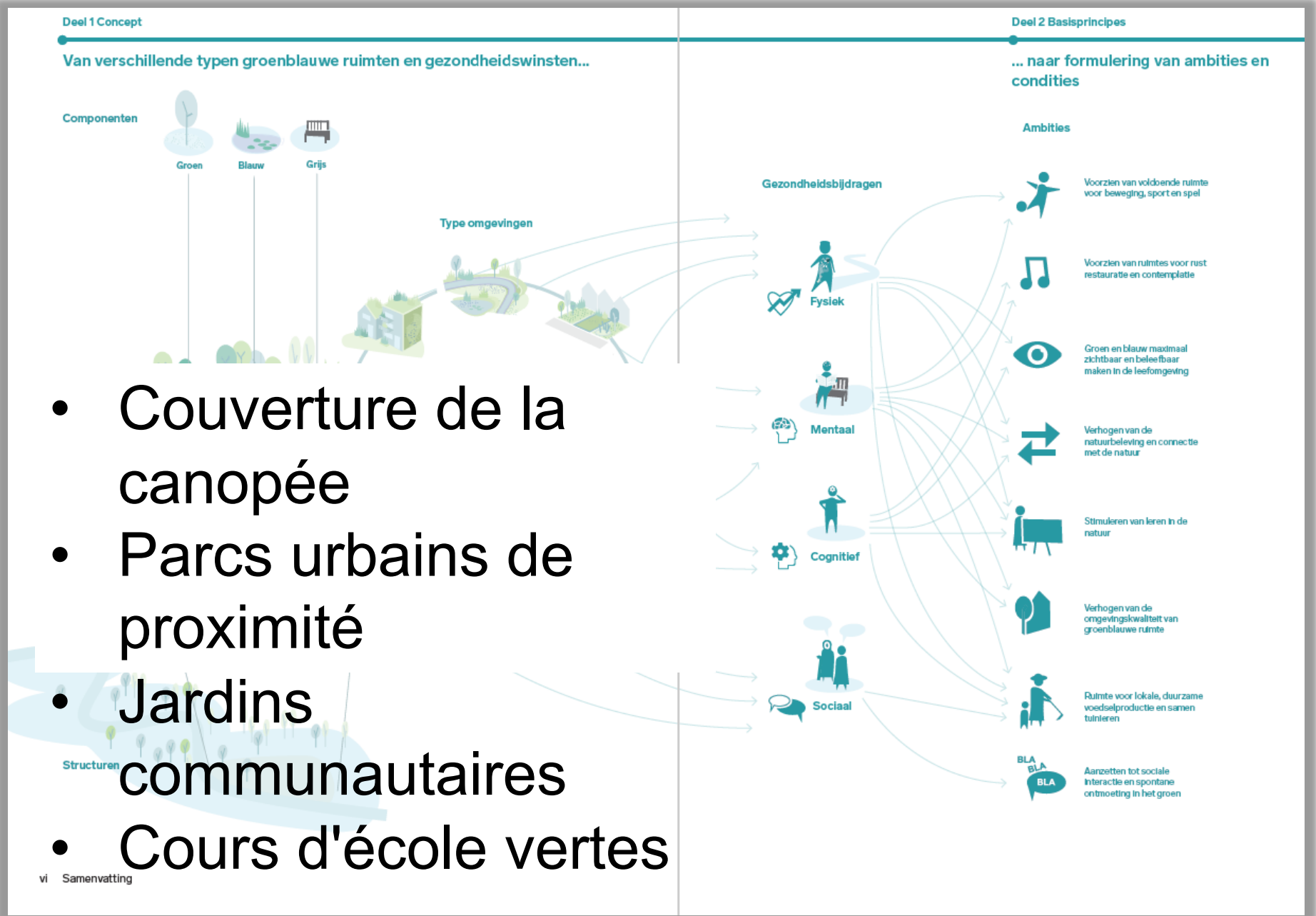
Planification, conception et gestion



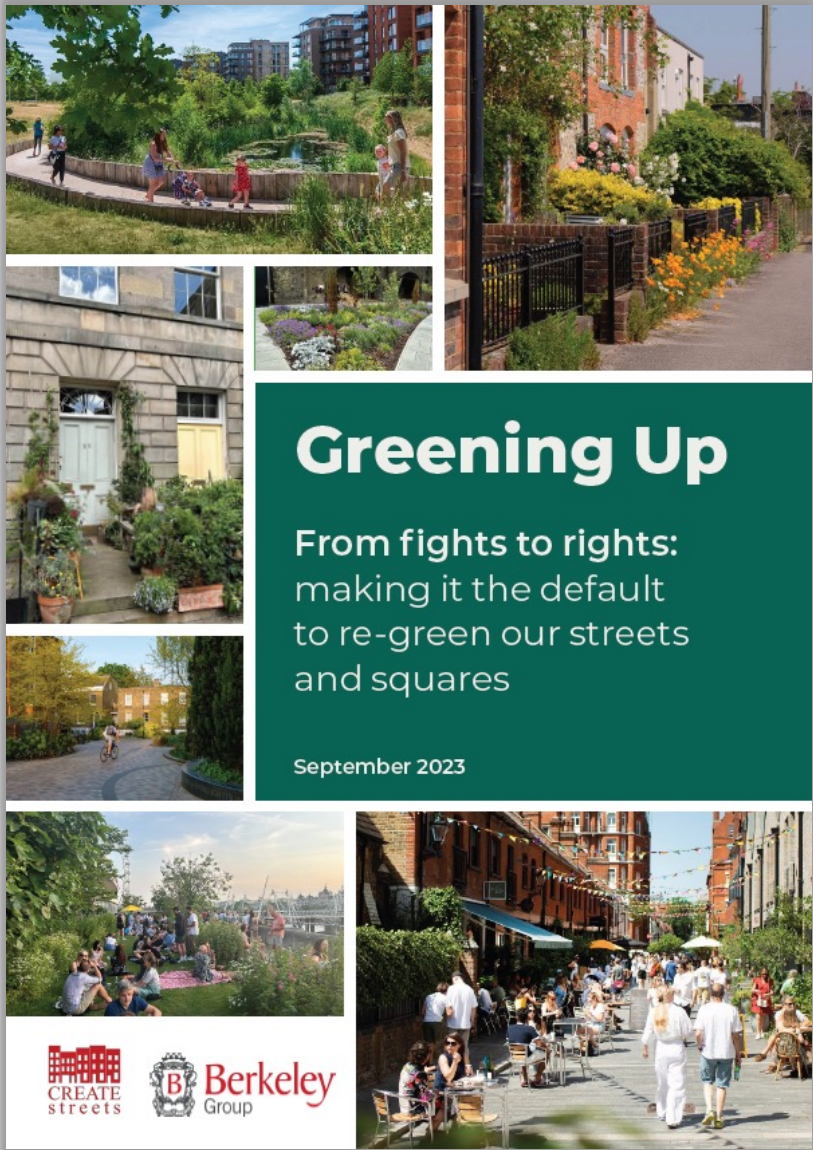
Principes pour la planification des espaces verts

- **Proximité (incluant la visibilité)**
- **Connectivité**
- **Diversité**
- **Équité**





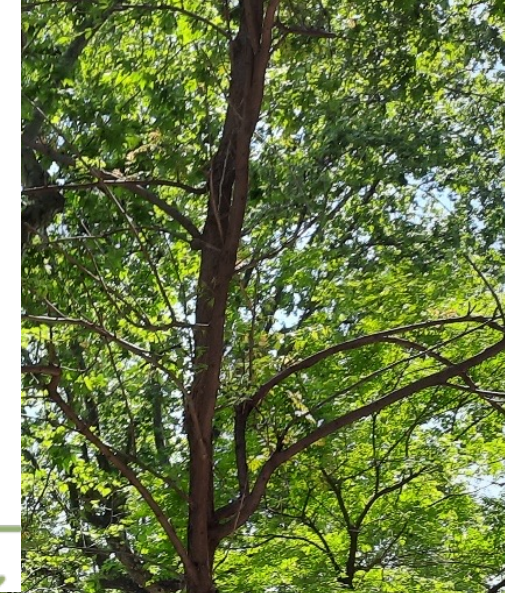
- Couverture de la canopée
- Parcs urbains de proximité
- Jardins communautaires
- Cours d'école vertes



2. Measuring greenery

Some definitions. What is urban greenery and how to measure it

- Exposition
- Accessibilité
- Hybride



Nantes Métropole adopte la règle des 3/30/300

3
Voir **3** arbres
depuis chez soi



30
Profiter de **30** %
de canopée dans
son quartier



300
Disposer d'un
site arboré à
moins de **300** m
de son domicile ou
de son lieu de travail





Hållbart från Miljöredning
samhällsbyggande

Nyheter Event Miljö & Utveckling

Tumregeln 3-30-300 ska skapa mer hållbara städer

HÅLLBAR STADSUTVECKLING Hur många träd ser du från ditt fönster? Minst tre träd borde ditt svar vara, enligt professor Cecil Konijnendijk, som lanserat tumregeln 3-30-300 för grönnare och mer hållbara städer.



NEWS > STORIES

The Urgency and Opportunity to Increase the Access of All Canadians to Urban Forests

09/22/2021

An interview with Dr. Cecil Konijnendijk on the **3-30-300 rule** for creating greener and healthier cities to mark National Tree Day on September 22.

By Vilbert Vabi
Policy & Campaign Manager,
Reforestation at Nature Canada

The **benefits** of urban forests, defined as all natural and planted trees in or near an urban area, are well known. However, **research** finds that there is inequitable access to urban forests and green spaces. Urban tree canopy tends to be higher in higher-income neighbourhoods with fewer minority residents. Unequal access of low-income and racialized Canadians to urban forests results in unequal access to their benefits, creating an environmental injustice.

With the government of Canada committing to **plant 2 billion trees (2BT)** over the next 10 years, the expansion of urban forests and **urban parks** is a political priority. With about 82% of Canadians living in urban areas, designing cities to be more livable through greater urban forest cover is an important priority.



Forest Europe growing life

30 years Ministerial Conference
BRATISLAVA 2021

14 - 15 April 2021

3-30-300 rule

This rule in urban planning argues that everyone should be able to see **at least 3 trees** from home, with a **30% vegetation cover** in each neighbourhood and the nearest park being a **maximum of 300 metres** away

Visit shutpix.com for latest unknown facts



Une étude explique la règle imparable des 3-30-300 pour avoir plus de chances d'être heureux 24 heures sur 24

PAR SARAH GARNIER MIS À JOUR LE 13/01/2023 À 17:12



Canada's Urban Forests

Bringing the Canopy to All

September 2022



A better approach is the 3-30-300 rule, which states that everyone should be able to see at least three trees from their home, that all neighbourhoods should have at least a 30% tree canopy, and that all residents should have a greenspace of at least one hectare within 300 metres of where they live. While this principle can help substantially in advancing tree equity, we need to go further. In this report, Nature Canada proposes that equitable access should be thought of in terms of three variables—proximity to urban trees and forests, urban forest quality and the governance of urban forests.


Everyone should be able to see at least **3 trees** from their home

Communities should ensure a **30% tree canopy** in all neighbourhoods

All residents should have a greenspace of at least **one hectare within 300 metres** of where they're living

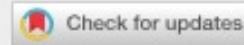
Research Article

Nature connectedness connects the visibility of trees through windows and mental wellbeing: a study on the “3 visible trees” component of the 3-30-300 rule

Hansen Li, Matthew H. E. M. Browning , Mondira Bardhan, Mingyue Ying, Xing Zhang, Yang Cao & ...show all

Received 20 Dec 2023, Accepted 21 Mar 2024, Published online: 09 Apr 2024

 Cite this article  <https://doi.org/10.1080/09603123.2024.2334767>



wellbeing using the WHO-5 wellbeing index. Our results showed that participants who could see at least three trees through their windows reported higher levels of both nature connectedness and mental wellbeing compared to those without such visibility. Nature connectedness significantly mediated the

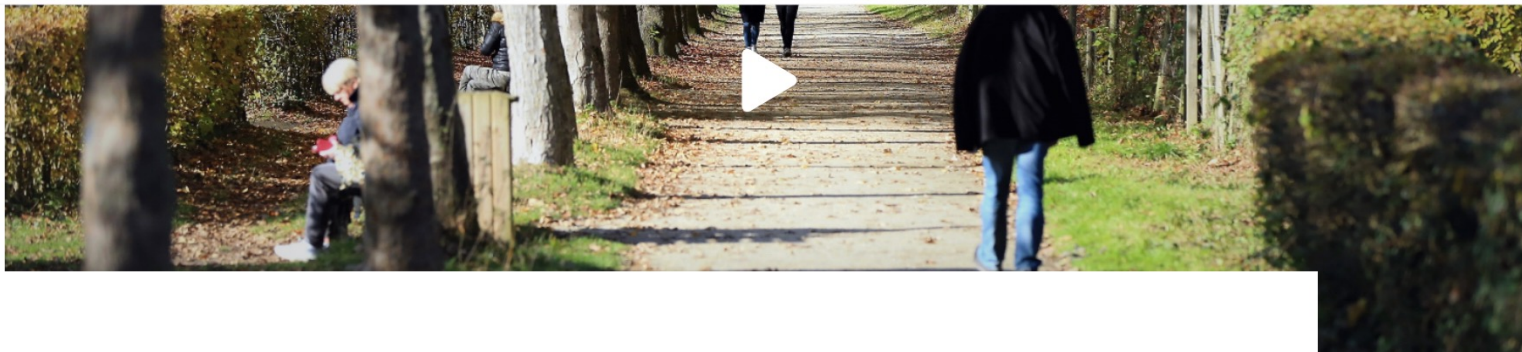


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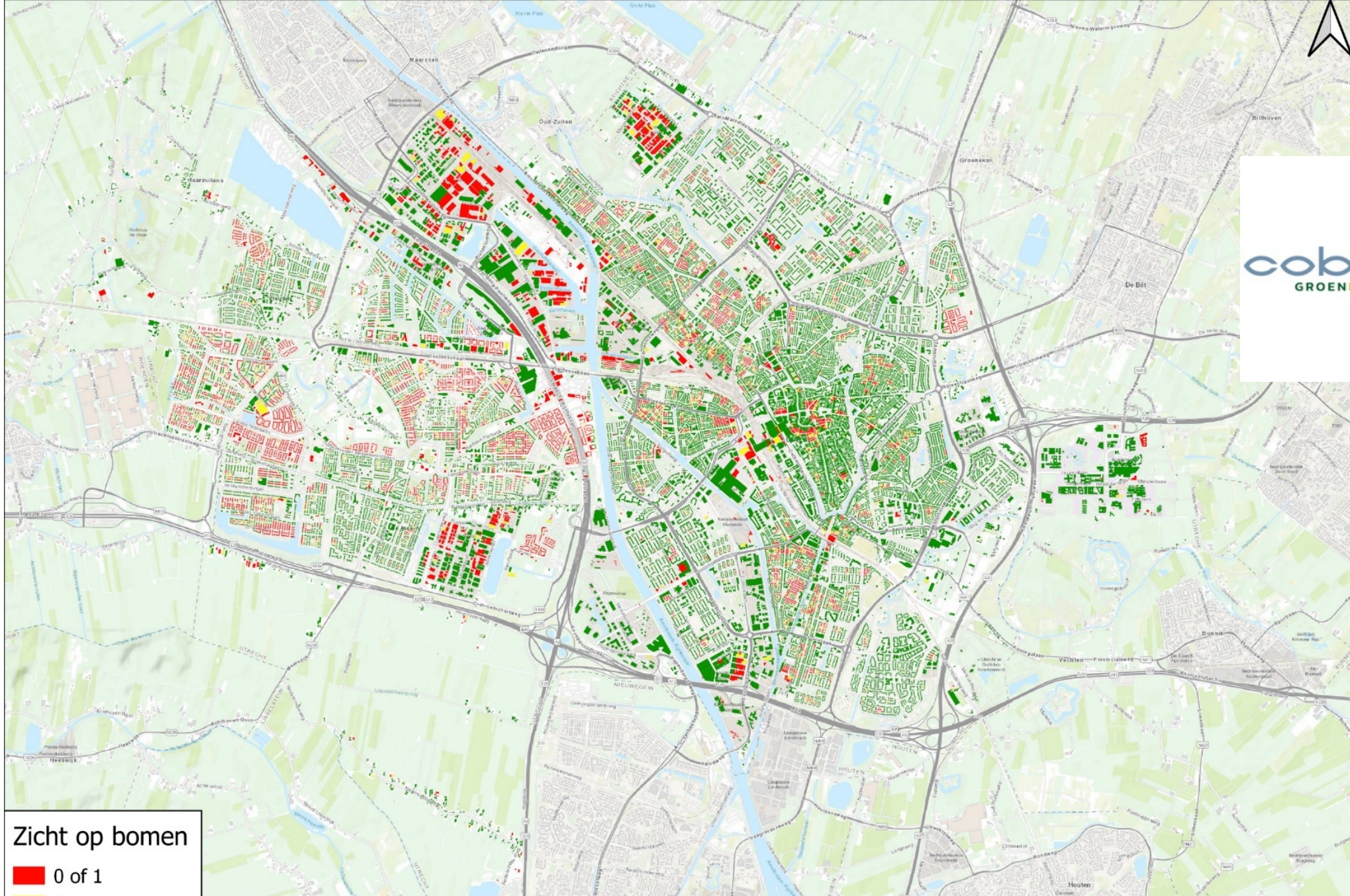


BEKIJK - In wijken vol hoge bomen met grote kruinen gaan minder pillen over de toonbank, stelt onderzoek van KU Leuven



Inderdaad. Ik zeg soms 3, 30, 300.

Residential Exposure to Urban Trees and Medication Sales for Mood Disorders and Cardiovascular Disease in Brussels, Belgium: An Ecological Study



Zicht op bomen

- 0 of 1
- 2
- 3 of meer

0 1 2 3 4 5 km



Wikimedia Commons / JORGITO1983

3-30-300

REGLA PRÁCTICA PARA LA PLANIFICACIÓN Y GESTIÓN DEL BOSQUE URBANO Y LA INFRAESTRUCTURA VERDE



3 ÁRBOLES POR HOGAR



30 POR CIENTO DE COBERTURA DE DOSEL ARBÓREO EN CADA BARRIO



300 METROS DE DISTANCIA A PARQUES PÚBLICOS O ÁREAS VERDES

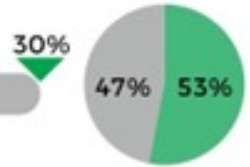
¿CUÁNTO DE ESTA REGLA SE CUMPLE EN GUAYAQUIL, ECUADOR?



MÁS DE LA MITAD DE LOS HOGARES MUESTREADOS EN URDESA CUENTAN CON 3 ÁRBOLES A LA VISTA



URDESA CUENTA CON 20% DE COBERTURA DE DOSEL ARBÓREO



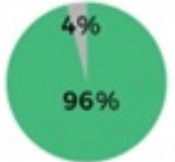
53% DE LA SUPERFICIE DE URDESA SE ENCUENTRA A 300 METROS DE DISTANCIA DE PARQUES



MENOS DE LA MITAD DE LOS HOGARES MUESTREADOS EN SAUCES CUENTAN CON 3 ÁRBOLES A LA VISTA



SAUCES CUENTA CON 9% DE COBERTURA DE DOSEL ARBÓREO



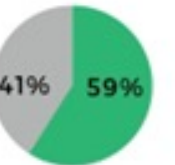
96% DE LA SUPERFICIE DE SAUCES SE ENCUENTRA A 300 METROS DE DISTANCIA DE PARQUES



UNA QUINTA PARTE DE LOS HOGARES MUESTREADOS EN LA FLORESTA CUENTAN CON 3 ÁRBOLES A LA VISTA



LA FLORESTA CUENTA CON 7% DE COBERTURA DE DOSEL ARBÓREO



59% DE LA SUPERFICIE DE LA FLORESTA SE ENCUENTRA A 300 METROS DE DISTANCIA DE PARQUES

3+30+300

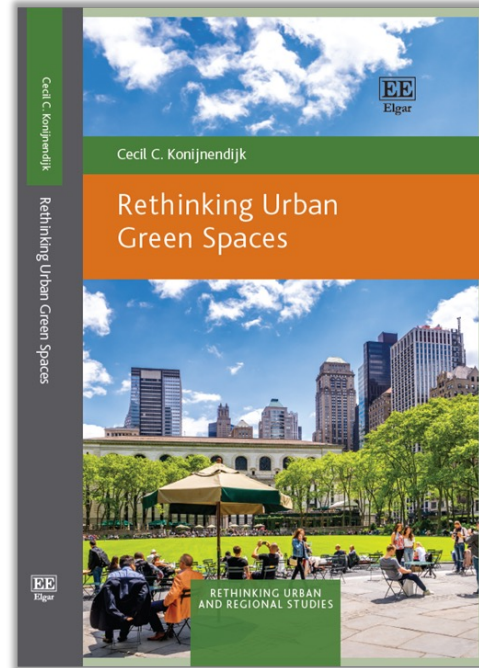
The Threes Rule for Trees

Trees and green spaces make cities healthier and more vibrant. The 'Threes Rule for Trees' is an evidence-based rule of thumb that individuals, governments, businesses, and organisations use to improve urban forests in their communities.

threesrule.com or treesrule.com

Bosquets urbains

(300)



Boisement urbain

(30)

Arbres devant la porte

(3)



<https://lc.nl/friesland/leeuwarden/Het-stationsplein-in-Leeuwarden-kleurt-groen.-Bekijk-hier-het-wandelende-bos-Bosk-vanuit-de-lucht-27665133.html>

BOSK



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NL



SOCIÉTÉ
QUÉBÉCOISE
DE PHYTO TECHNOLOGIE
Colloque 2024





Opdrachtgever: Gemeente Utrecht

Oppervlakte: 4,2 ha

Jaar: 2020

Samenwerking:

Gemeente Utrecht, Witteveen+Bos, D. van der Steen BV

Prijs:

CATHARIJNESINGEL

UTRECHT

De Catharijnesingel is weer rond!

De singel is weer rond! Sinds september 2020 is de binnenstad van Utrecht weer helemaal omsingeld door water en groen. Het herstel van de singelstructuur rond de oude binnenstad is een belangrijk onderdeel van het Masterplan Stationsgebied. Hiervoor is de oorspronkelijke, historische waterstructuur hersteld door de gracht opnieuw te graven waar deze in het verleden is gedempt. In 2015 zijn de eerste delen

URBAN SYMBIOSIS

VITAL SOIL AS SUPPORT FOR BIODIVERSITY & HEALTHY LIVING ENVIRONMENT

Project Plan

Creative Industries fund NL | Open Call Building out of the Soil

SYLVA ATELIER FOR LANDSCAPE ARCHITECTURE & URBAN FORESTRY | TERRA NOSTRA | NATURE BASED SOLUTION INSTITUTE
NATURALIS BIODIVERSITY CENTER | TU DELFT FACULTY OF ARCHITECTURE & THE BUILT ENVIRONMENT
THE HAGUE MUNICIPALITY

September 2022

creative industries fund NL

SYLVA
LANDSCAPE ARCHITECTURE
URBAN FORESTRY

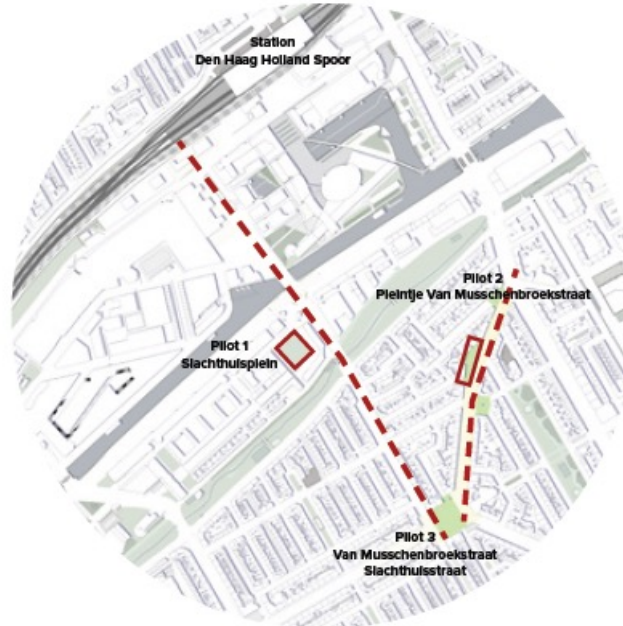
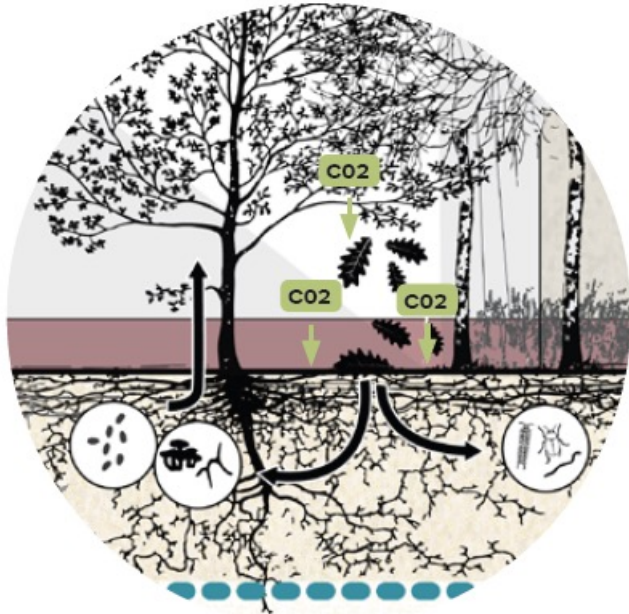


TU Delft
Department of Urban
BK Bouwkunde



Soil as key actor to mitigate climate change and vital green public spaces

Three pilot projects in the Laak district



Réflexions

Les forêts urbaines sont des solutions ultimes basées sur la nature.

Nous vivons des moments difficiles mais excitants - et il y a un réel sentiment d'*urgence*.

Les études et l'implantation de projets sont en augmentation.

La foresterie urbaine devrait s'appuyer sur des *lignes directrices* et des *mesures fondées sur des données probantes*.



Crédits de formation continue

Cette présentation permet aux arboriculteurs certifiés de l'ISA de cumuler des crédits de formation continue.



Renforcer le rôle des arbres urbains en tant que solutions basées sur la nature

Code de CFC : **QU-24-047**



0,75 CFC

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