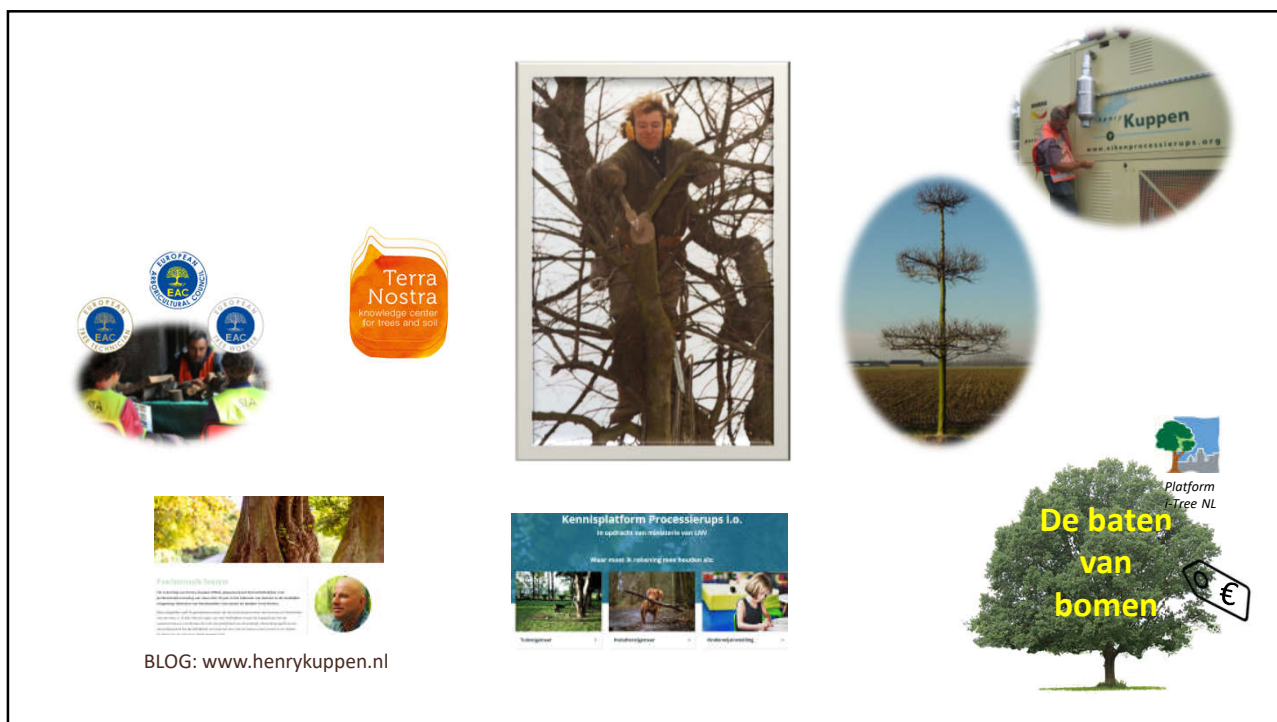


Dutch approach of tree management, overstructured or complete?

MEET THE DUTCH EXPERTS

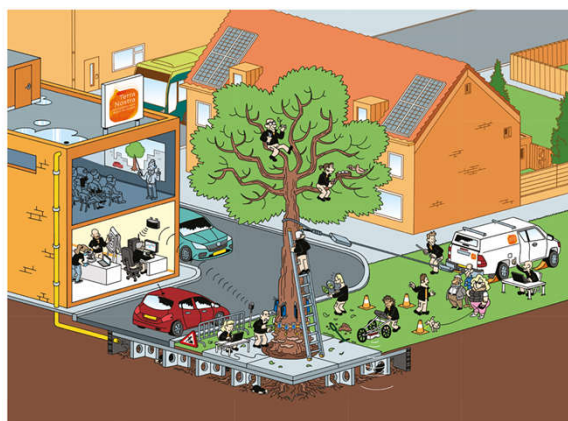
HENRY KUPPEN





MEET THE DUTCH EXPERTS

Terra Nostra kennisatelier voor boom en bodem



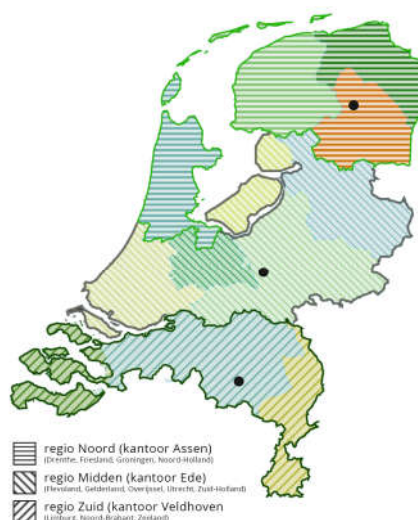
www.terranostra.nu

MEET THE DUTCH EXPERTS

HERMAN WEVERS



MEET THE DUTCH EXPERTS



MEET THE DUTCH EXPERTS



MEET THE DUTCH EXPERTS

FOKKE & SUKKE
KREGEN HET RAPPORT VAN HUN ZOON

ALLE VAKKEN ONVOLDOENDE,
SLECHTE HOUDING IN DE KLAS,
ONHANDELSBAAR...



Fokke & Sukke
receive their son's grades

Left: he failed all his classes, his attitude disturbs everyone around him, he's uncontrollable...

Right: uh oh... you don't think he might be... gifted?

www.foksuk.nl

MEET THE DUTCH EXPERTS



MEET THE DUTCH EXPERTS

HAROLD SCHOENMAKERS

ASSOCIATIONS AND BRAND ORGANISATIONS

ASSOCIATIONS AND BRAND ORGANISATIONS

KPB [Kring Praktiserende Boomverzorgers]

- An association with personal membership
- Since 1982
- Over 900 members



ASSOCIATIONS AND BRAND ORGANISATIONS

VHG [Vakgroep Boomspecialisten]

- Since 1920 (almost 100 years)
- Tree specialists since 1998
- Brand organisation
- Membership with companies (67)
- Collective agreement
- Education
- Brand representation



ASSOCIATIONS AND BRAND ORGANISATIONS

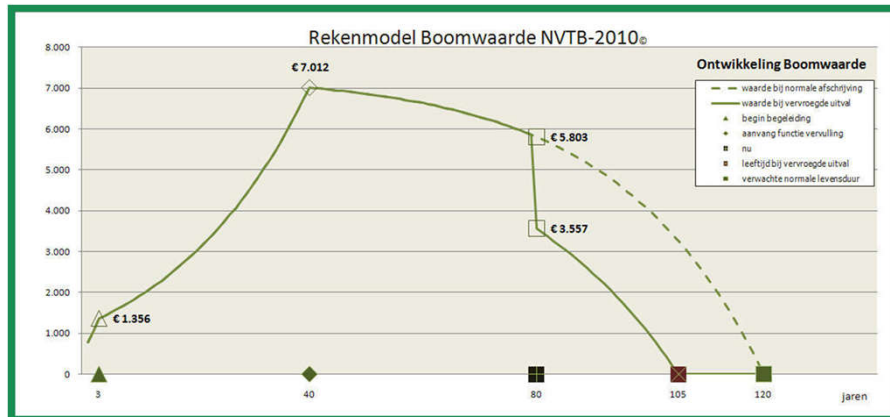
NVTB [Nederlandse Vereniging van Taxateurs van Bomen]

- Valuation of trees
- Since 1994
- 50 members



ASSOCIATIONS AND BRAND ORGANISATIONS

NVTB [Nederlandse Vereniging van Taxateurs van Bomen]



ASSOCIATIONS AND BRAND ORGANISATIONS

Bomenstichting

- Foundation with almost 2.250 members/donors
- Anyone can be a member, mostly 'normal' citizens
- Since 1970
- Consulting people and government
- Map of 'monumental' trees and lanes (15.000 pieces)



ASSOCIATIONS AND BRAND ORGANISATIONS

Bomenstichting

The screenshot shows the Bomenstichting website interface. At the top, there are navigation links: Home, kaart Bomen, and Privacyverklaring. Below this, the main heading is 'Monumentale Bomen overzichtskaart'. There are several search filters: 'toon bomen in mijn omgeving', 'of kies provincie' (Gelderland), 'status van boom' (geen selectie op status), and 'boomnummer' (1694501). A 'zoek' button is present. To the right, a sidebar displays details for '1694501: Zomereik Rhederoord rand', including 'boomnummer: 1694501', 'boomsoort: Quercus robur', 'ingevoerd: 31-12-2015', 'status: monumentaal', 'plantjaar: 1810_1820', and 'boomvorm: natuurijk'. Below the filters, there is a legend for 'boom status' with icons for 'potentieel monumentaal', 'monumentaal', 'dood / geveld', and 'rood kader: nog te inspecteren'. On the right, a 'Satelliet' map shows the location of the tree in Rhederoord, with labels for 'Restaurant Koetshuis Rhederoord', 'Landgoed Rhederoord', 'De Loopendeken', 'Gemeente Rheden', 'De Sluisweg', 'Protestantse kerk', 'Restaurant het wippen van Atia', 'TVRU bed breakfast', and 'BOS'. A 'wils' button is also visible.

ASSOCIATIONS AND BRAND ORGANISATIONS

ISB [Intergemeentelijke Studiegroep Bomen]

- Tree-officers of the 35 big cities (of the 355 communities)
- Researchers and lecturers from University
- Teachers/instructors from practical schools
- 4 meetings a year with excursions

ASSOCIATIONS AND BRAND ORGANISATIONS

EAC [European Arboricultural Council]

- Founded in 1992
- 25 countries are member
- Founder of the ETW and European Tree Technician certificates



ASSOCIATIONS AND BRAND ORGANISATIONS

ISA [International Society of Arboriculture]

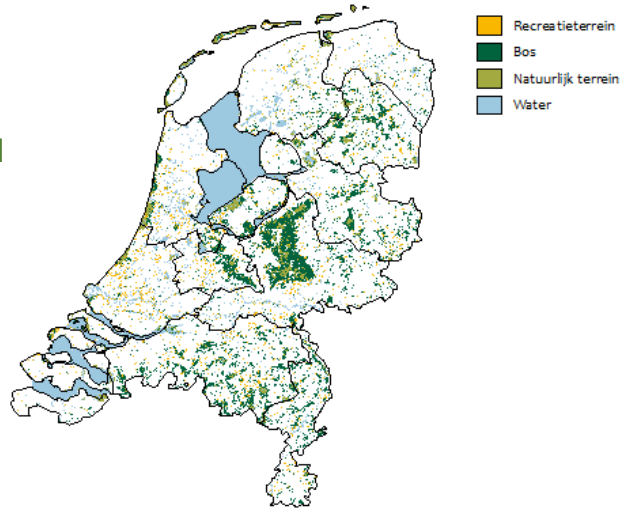
- Almost 20.000 members worldwide



ASSOCIATIONS AND BRAND ORGANISATIONS

In conclusion

Like the forests and landscape,
Dutch organisations are shredded



EDUCATION

EDUCATION

- Boomveiligheidcontroleur:
Visual Tree Inspector
- ETW or European Tree Worker:
BBL and BOL
- ETT or European Tree Technician:
European Tree Technician (+/- BSc)
- University TU Delft MSc



THE CLIENT IS WEAKER THAN THE CONTRACTOR

THE CLIENT IS WEAKER THAN THE CONTRACTOR



The bad news is: the client does not want to see you anymore.

The good news is that we just got a new job from his wife.

THE CLIENT IS WEAKER THAN THE CONTRACTOR

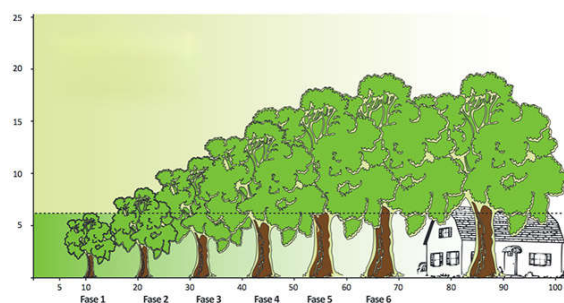


PRUNING STANDARD

PRUNING STANDARD

'Quercus' pruning model

- Planned maintenance large tree populations
- Introducing definitions:
 - Final tree image
 - Temporary crown-guidance pruning
 - Final crown-maintenance pruning



PRUNING STANDARD



PRUNING STANDARD



PRUNING STANDARD



PRUNING STANDARD



PRUNING STANDARD



PRUNING STANDARD



PRUNING STANDARD



PRUNING STANDARD



PRUNING STANDARD



SURVEY STANDARD

SURVEY STANDARD

Guideline: BVC -Tree Safety Survey

Motivation:

- Unambiguous characteristics
- No overview with claims
- Different digital formats

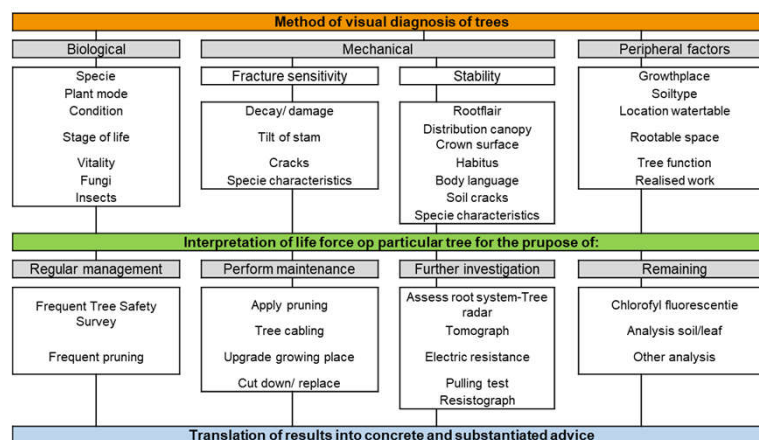
Juridical duty of care:

- Management of safety risk:
 - Frequent survey
 - Safety measurements
 - Frequent maintenance



SURVEY STANDARD

Process



CHALLENGES OF SURVEY

Challenges of survey

Mill kasteel Aldendriel 2003



CHALLENGES OF SURVEY

Mill castle
Aldendriel
2003



CHALLENGES OF SURVEY

Mill castle
Aldendriel
2014



CHALLENGES OF SURVEY

Mill castle
Aldendriel
2014



CHALLENGES OF SURVEY

Mill castle
Aldendriel
2016



CHALLENGES OF SURVEY

Mill castle
Aldendriel
2016



CHALLENGES OF SURVEY

Mill castle
Aldendriel
2016



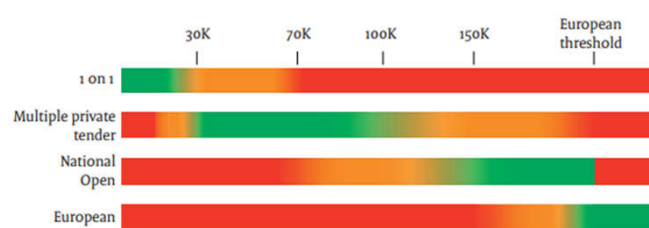
GUIDELINE BOMEN EFFECT ANALYSE

BOMEN EFFECT ANALYSE



CONTRACTING

CONTRACTING



1 on 1	To € 50.000,-
Multiple private tender	From €50.000,- to €125.000,-
National Open	From €125.000,- to €221.000
European	Above €221.000 (£ 192.000)

FIXED TERMS

FIXED TERMS

Guidance pruning



FIXED TERMS

Maintenance pruning



FIXED TERMS

Shape pruning



FIXED TERMS

Acceptable condition



FIXED TERMS

Overdue condition



FIXED TERMS

Neglected condition



FIXED TERMS

Tree pruning tender according to RAW standard

FIXED TERMS



FIXED TERMS

1							BOOM ONDERHOUD					
1010							Boomonderhoud					
101010	515599						Boomonderhoud	EUR		N		
101011	515799						Snoeien bomen Snoeien bomen conform prestatie eis zoals beschreven in deel 3, artikel 51.52.08 en plan van aanpak aannemer. Vrijgekomen materialen komen te vervallen aan de aannemer.					

FIXED TERMS

Begeleidinssnoei	Kosten		Onderhoudssnoei	Kosten	
0-20ft	€ 6,00	£5,19	0-20ft	€ 10,00	£8,65
20-30ft	€ 10,00	£8,65	20-30ft	€ 25,00	£21,63
30-40ft	€ 17,00	£14,71	30-40ft	€ 34,00	£29,41
40-50ft	€ 25,00	£21,63	40-50ft	€ 43,00	£37,20
50-60ft	€ 34,00	£29,41	50-60ft	€ 65,00	£56,23
60-80ft	€ 43,00	£37,20	60-80ft	€ 100,00	£86,50
>80ft	€ 65,00		>80ft	€ 125,00	£108,13

NVTB: TREE-VALUATION

i-TREE

i-TREE

i-Tree Eco
2015-2018

14 municipalities

Pilot 1
Budget

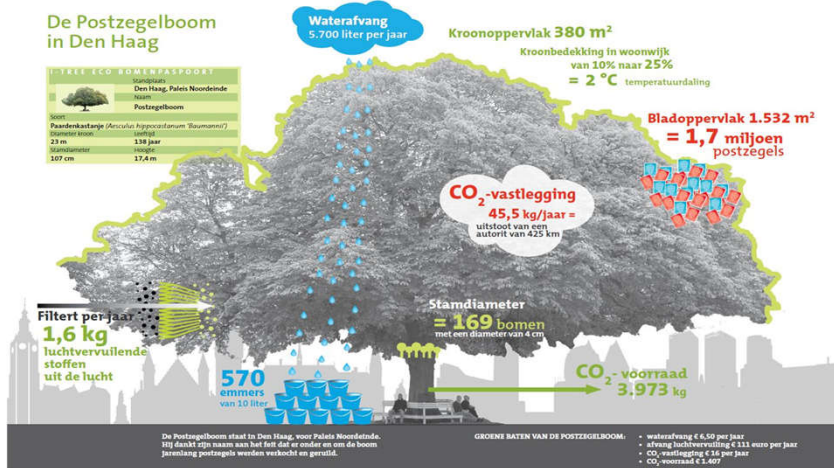
Orientation – opportunities
€ 63.000 municipalities
€ 50.880 project companies

Pilot 2
Budget

Verdieping en optimalisatie
€ 135.000 municipalities
€ 50.000 project companies



i-TREE



i-TREE

Volume

Red oak, *Quercus rubra*

Stemdiameter	137 cm	
Hight	21 m	
Crown surface	531 m ²	
Leaf surface	1.405 m ²	
LAI	2,6	
baten		
CO ₂ storage	2.345 kg	€ 830
CO ₂ sequestration/year	60 kg	€ 21
Water sequestration/year	4.000 liter	€ 10
Pollution/year	1.917 gram	€ 94
Total		€ 125



i-TREE

Volume

Maple, *Acer platanoides* 'Globosum'

	Red oak	Maple		
Stemdiameter	137 cm	32 cm		
Hight	21 m	4 m		
Crown surface	531 m²	64 m²		
Leaf surface	1.405 m²	135 m²		
LAI	2,6	2,1		
	Benefits			
CO₂ storage	2.345 kg	€ 830	355 kg	€ 125
CO₂ sequestration/year	60 kg	€ 21	17,4 kg	€ 6
Water sequestration/year	5.500 liter	€ 10	500 liter	€ 0,90
Pollution/year	1.917 gram	€ 94	184 gram	€ 9
Total		€ 125		€ 15,90



i-TREE

Lomanstraat



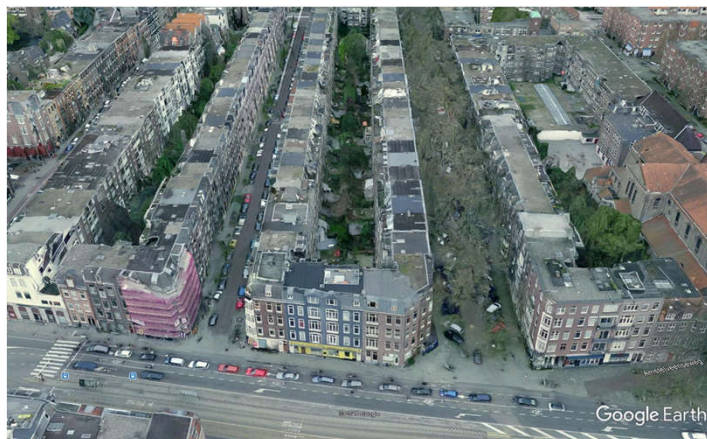
i-TREE

Valeriusstraat



i-TREE

Valeriusstraat 34 meidoorns
Lomanstraat 22 platanen



i-TREE

Calculation tree

Population Utrecht

€1.5 million yearly benefits

€5.5 million CO₂ storage



i-TREE

Calculation tree

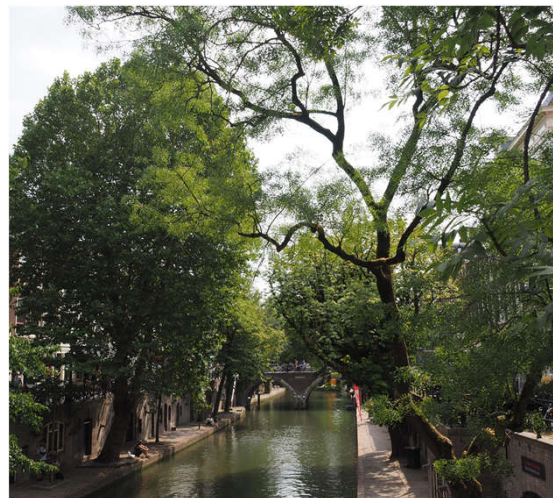
Population Utrecht

€1.5 million yearly benefits

€5.5 million CO₂ storage

Most benefits ash

- 2,671 ton CO₂ storage, € 950,000
- 99 ton CO₂ sequestration per year, € 253,000
- 9,349 m³ watersequestration per year
- 17% leaf surface captures 4.5 ton pollution per year



i-TREE



Leidserijn diversity

Leidserijn Corylus columna

SPECIES DIVERSITY

SPECIES DIVERSITY

IJburg, Amsterdam



SPECIES DIVERSITY



U. laevis



U. 'Sapporo Autumn Gold'



U. 'New Horizon'



U. 'Columella'



U. Cathedral

SPECIES DIVERSITY

IJburg, Amsterdam



SPECIES DIVERSITY

Noordoostpolder



PESTS & DISEASES

NVWA

Ministry of Agriculture, Nature and Food quality



PESTS & DISEASES

Ministry of Agriculture, Nature and Food quality



PESTS & DISEASES

Es, Fraxinus

Ash dieback,
Hymenoscyphus fraxineus



PESTS & DISEASES

Es, Fraxinus

Ash dieback,
Hymenoscyphus fraxineus



PESTS & DISEASES

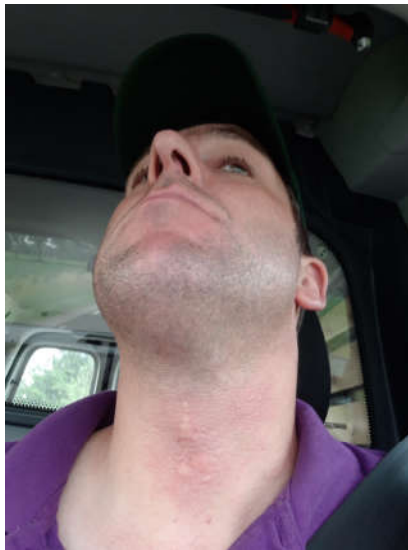
Oak, Quercus

Oak Processionary Moth,
Thaumetopoea processionea





1 minuut



5 minuten

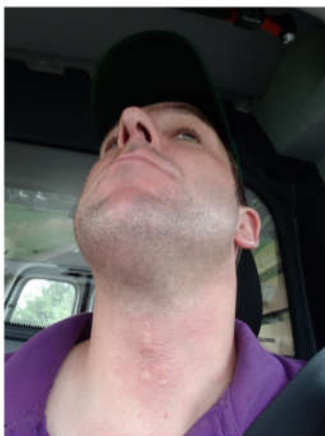


30 minuten

PESTS & DISEASES



After 1 minute



After 5 minutes



After 30 minutes

PESTS & DISEASES

Maple, Acer

Sooty Bark disease
Cryptostroma corticale



PESTS & DISEASES

Horse chestnut, **Aesculus**

Bleedingcanker
Pseudomonas syringae
pv *Aesculi*



PESTS & DISEASES

Horse chestnut,
Aesculus

Bleedingcanker
Pseudomonas syringae
pv *Aesculi*



PESTS & DISEASES

Buxus, *Buxus*

Boxwood moth
Cydalima perspectalis



PESTS & DISEASES

Xylella,

Xylella fastidiosa

Outbreak:

- 2013 Italy
- 2015 France
- 2016 Spain
- 2016 Germany-2018
declared eradicated

Interception:

- 2018 Belgium
- 2018 the Netherlands



PESTS & DISEASES

Monoculture

Heerde, *Quercus robur*



PESTS & DISEASES

Monoculture

Rhenen, ash



INNOVATION

INNOVATION

Ontaarde boom

Bare rooted tree



Innovation



Ontaarde boom

Bare rooted tree



Integral cable tunnel



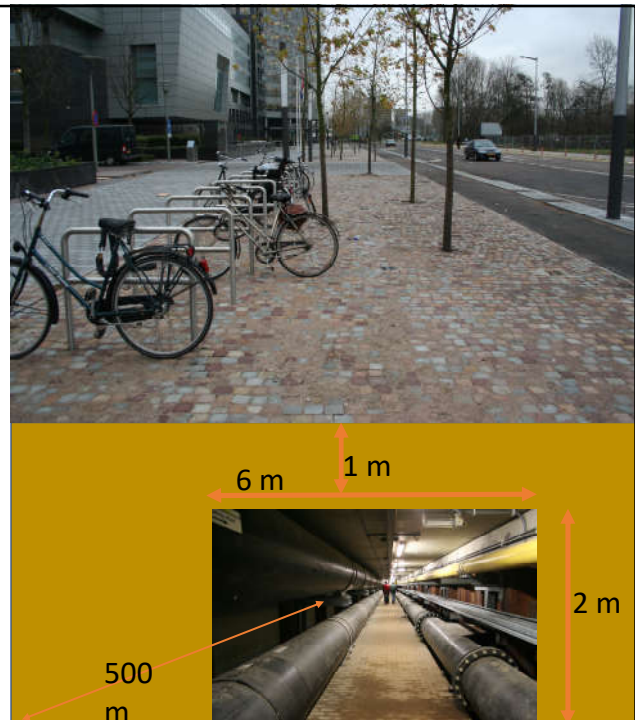
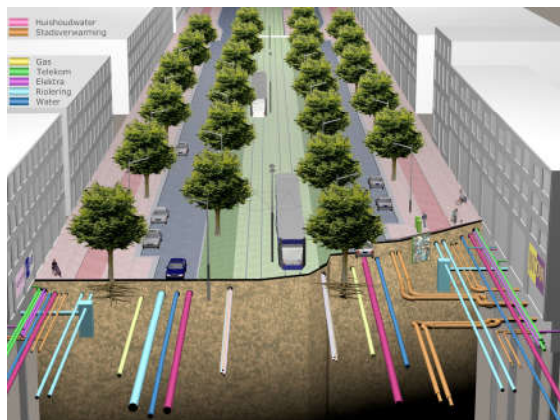
INNOVATION

Integral cable tunnel



Integral cable tunnel

Zuidas Amsterdam, 2004, 8 million Euro



Integral cable tunnel

Zuidas Amsterdam

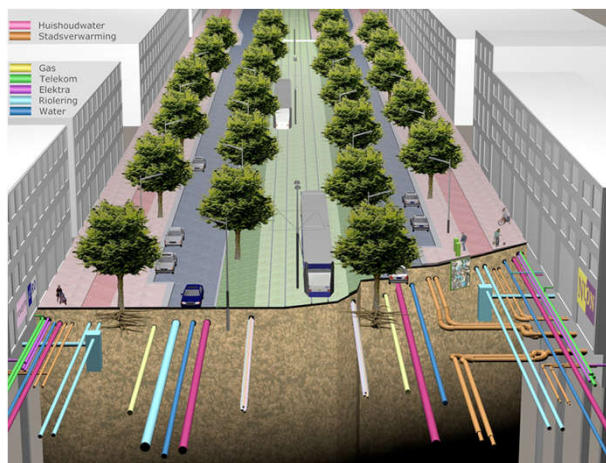


INNOVATION

Integral cable tunnel

Zuidas Amsterdam, 2004

8 million euro



FIELD RESEARCH

FIELD RESEARCH



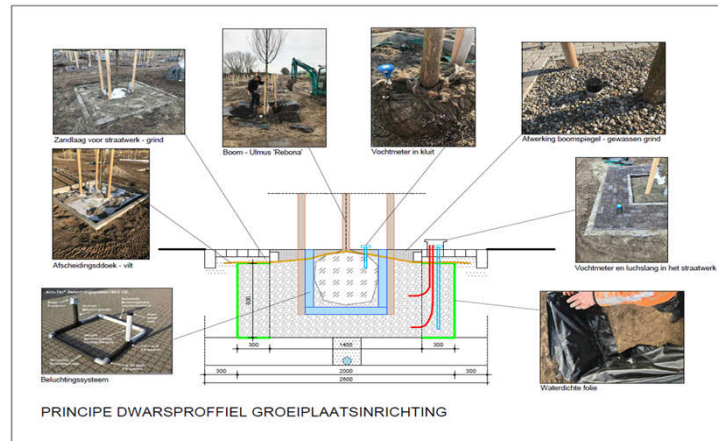
FIELD RESEARCH



FIELD RESEARCH



FIELD RESEARCH



FIELD RESEARCH



FIELD RESEARCH



FIELD RESEARCH



FIELD RESEARCH



SPECIAL PROJECTS

SPECIAL PROJECTS

Vertical forest

Bosco Verticale

Milaan, Italy



SPECIAL PROJECTS

Vertical forest

Trudo Tower

Eindhoven

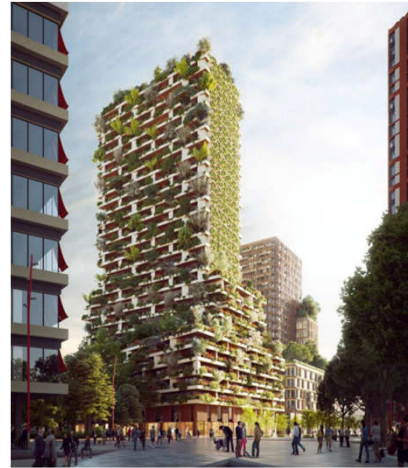


SPECIAL PROJECTS

Vertical forest

Wonderwoods

Utrecht



NEN-2767

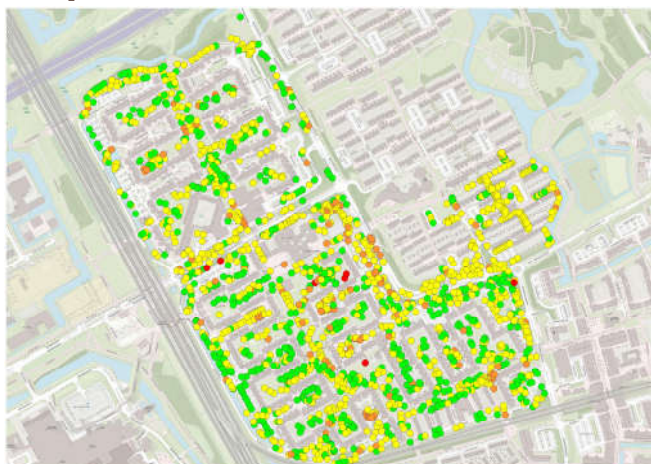
NEN-2767

The problem

Company	Number	Species	Diameter	Condition
A	17	Tilia tomentosa	53	Good
B	17	Tilia tomentosa	40	Normal
C	17	Tilia tomentosa	41	Average
A	18	Tilia tomentosa	53	Good
B	18	Tilia tomentosa	42	Normal
C	18	Tilia tomentosa	43	Average
A	19	Tilia tomentosa	76	Good
B	19	Tilia tomentosa	59	Normal
C	19	Tilia tomentosa	42	Sufficient

NEN-2767

The problem



- gelijke beoordeling
- 1 conditiekلاس verschil
- 2 conditieklassen verschil
- 3 conditieklassen verschil

NEN-2767

The problem

BOOMVADEMECUM Good • Fair • Average • Bad • Very bad

HANDBOEK BOMEN Sufficient • Insufficient • Bad • Very bad

TERRA NOSTRA Normal • Decreased • Strongly decreased • Very bad

QUERCUS Good • Fair • Average • Bad

KWALITEITSGIDS OPENBARE RUIMTE

Conditie is not an item

GUIDELINE BOOMVEILIGHEIDSREGISTRATIE CROW

Via NEN-2767

NEN-2767

How it works

- Flaw and level of flaw
- Intensity
- Amount

NEN-2767

New flaws

Gravity	Tree flaws
Grave flaws	Dying
	Shoot length
Serious flaws	Leaf color
	Leaf development
	Leaf discoloration
	Wound reaction
	Strain development
Light flaws	Flowering development

NEN-2767

Intensity

Intensity 1	Start stage	The flaw is barely noticeable
Intensity 2	Advanced stage	The flaw is noticeable
Intensity 3	End stage	The flaw is obviously noticeable The flaw can barely increase or get worse

NEN-2767

Amount

Class	Percentage	Description
1	< 2%	The flaw happens incidentally
2	2-10%	The flaw happens locally
3	10-30%	The flaw happens occasionally
4	30-70%	The flaw happens often
5	> 70%	The flaw happens constantly

NEN-2767

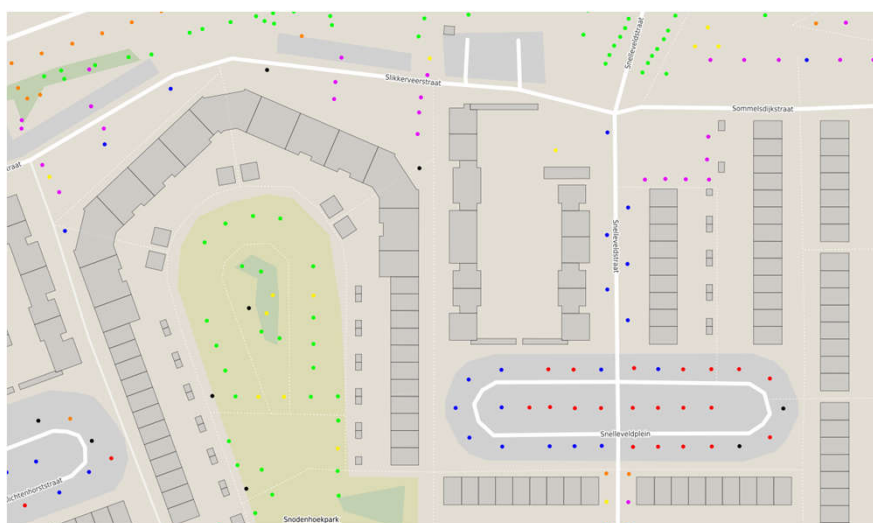
Condition classes

1	Perfect condition
2	Good condition
3	Fair condition
4	Average condition
5	Bad condition
6	Very bad condition

NEN-2767

Condition score	Description	Description
1	Perfect condition	The vegetation shows optimal, species-specific development
2	Good condition	The vegetation shows species-specific growth, noticeable from the crown density and the closedness of the vegetation
3	Fair condition	The vegetation shows slight lack of growth, among other things clearly visible from the slightly transparent crown or thin vegetation
4	Average condition	The vegetation shows a lack of growth, among other things clearly visible from the slightly transparent crown, thin vegetation, necrosis and/or decreased growth. Regeneration is still possible
5	Bad condition	The vegetation shows a strong lack of growth. There are clear signs of total decay, among other things visible from necrosis. The process of regeneration is barely possible
6	Very bad condition	The vegetation is all but dead. Regeneration is impossible

NEN-2767





Dutch approach of tree
management, overstructured or
complete?