PARIS REGION INSTITUTE



GREEN TRANSITION IN THE PARIS REGION
A FOCUS ON URBAN NATURE

Marc BARRA
Urban ecologist, biodiversity department

OCTOBER 2026

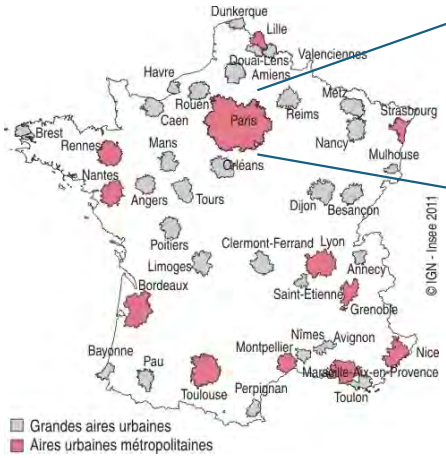
L'INSTITUT PARIS REGION ARB AGENCE RÉGIONALE DE LA BIODIVERSITÉ

PLAN OF THE PRESENTATION

1. Current challenges in the Paris region
2. Nature-based solutions : a review of projects
3. Some research projects
4. Ideas for the future ?

Petite ceinture de Paris (former circular railway). Marc Barra

THE PARIS REGION









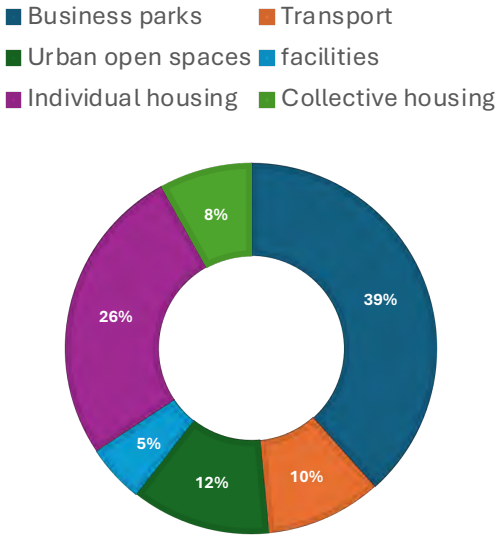


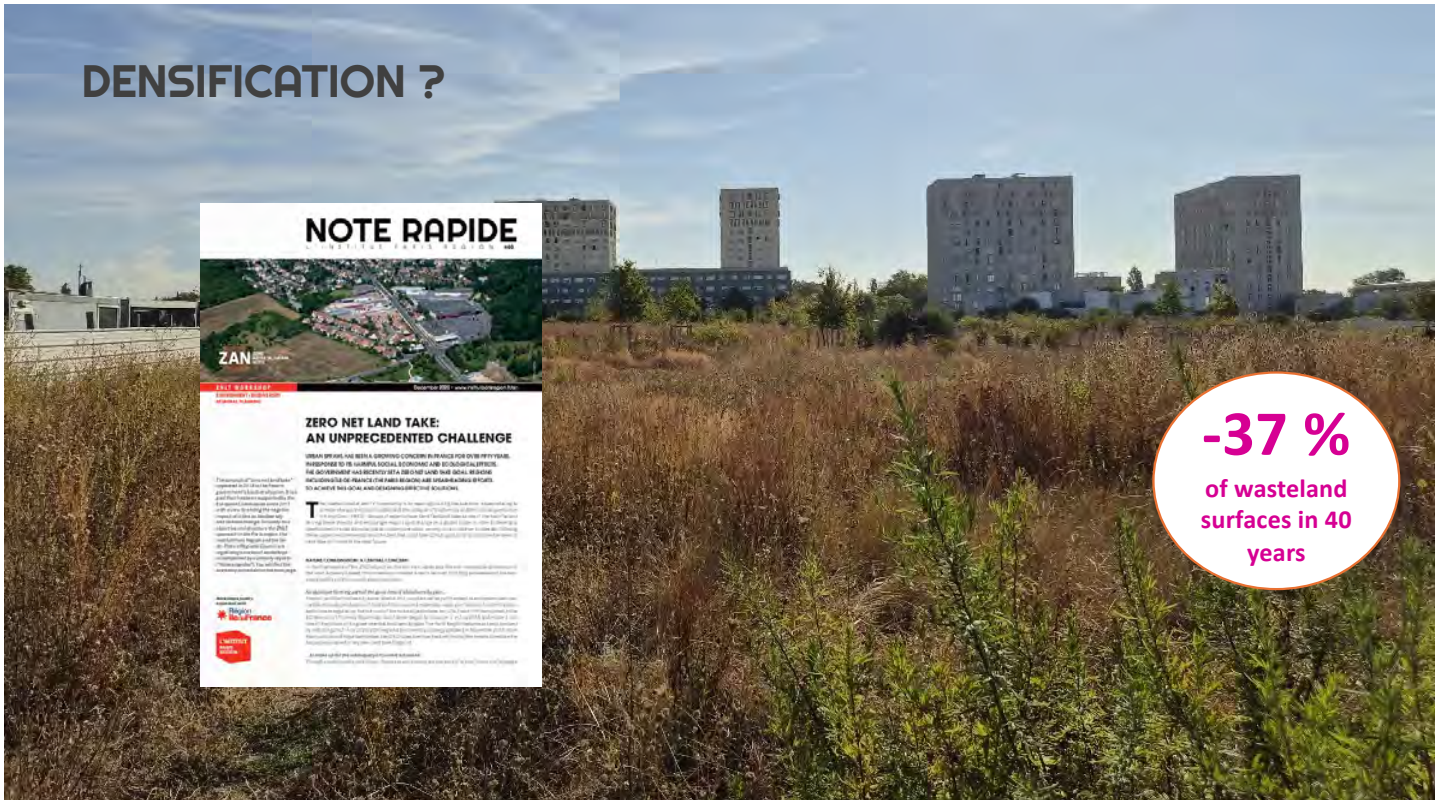
Surface area:
12,012 km²
Population :
12 MILLION inhabitants

CURRENT CHALLENGES IN THE PARIS REGION

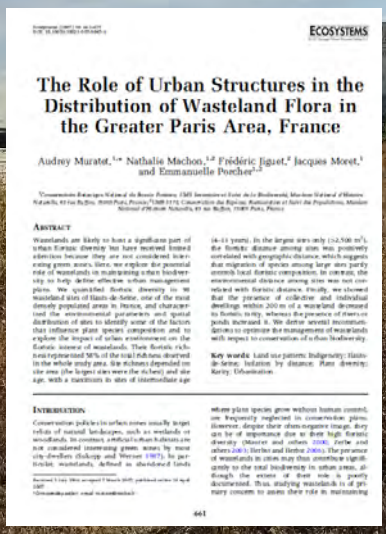
REDUCE SOIL LAND TAKE







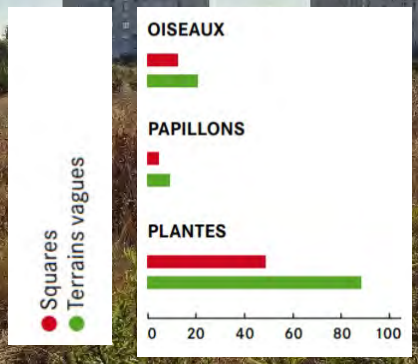
DENSIFICATION ?



ECOSYSTEMS

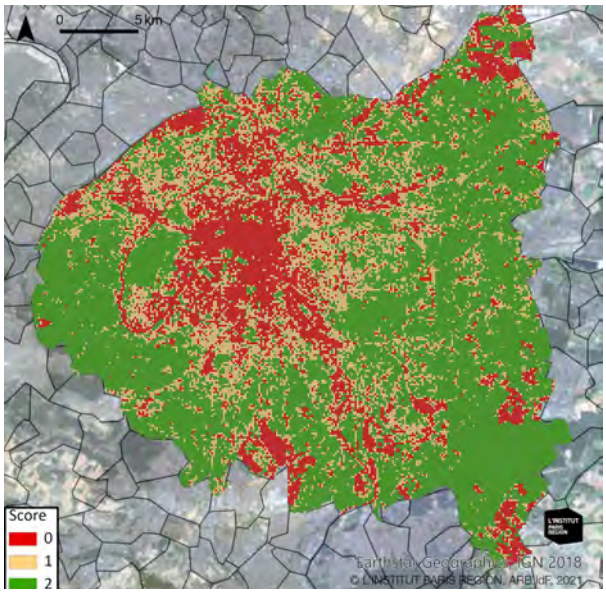
The Role of Urban Structures in the Distribution of Wasteland Flora in the Greater Paris Area, France

Audrey Muratet,[1,*] Nathalie Machon,[1,2] Frédéric Jiguet,[2] Jacques Moret,[1] and Emmanuelle Porcher[1,2]



Wasteland project, based on the ecological assessment of 21 wasteland in the Paris region (PhD: Assaf Shwartz, 2010)

PARIS METROPOLITAN AREA : ALREADY DENSE



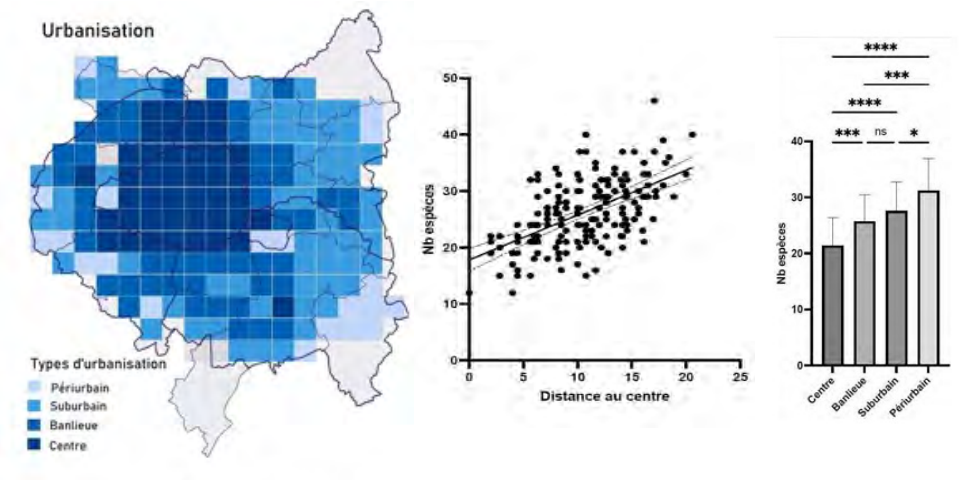
Threlfall et al, 2017 ; Szulczewska et al, 2014

Greater Paris Metropolis
Density : ~8 700 inhab./km²

Paris
Density : ~20 000 inhab./km²

Vegetation cover (%)	< 25 %
	25 % ≤ < 45 %
	≥ 45 %

BIODIVERSITY IS AFFECTED BY URBAN DENSITY AND MINERALITY



Malher, F., Disson, O., & Laporte, O. Avifaune et urbanisation: l'exemple du Grand Paris. Le Passer, vol. 56 (2023)



House Sparrow

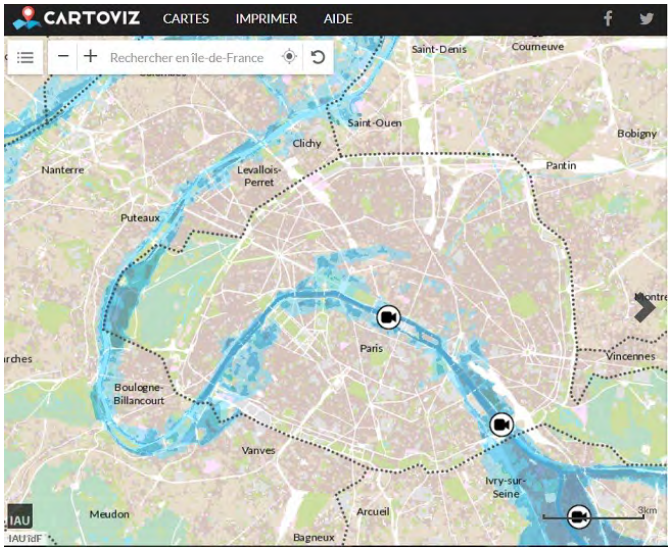


Black redstart

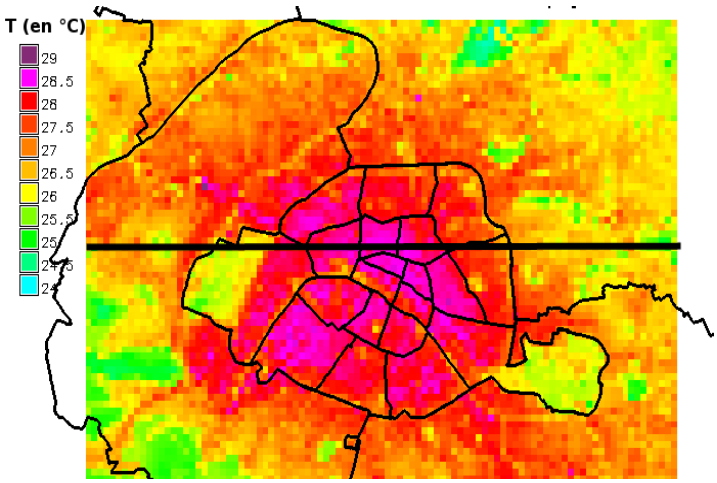


House martin

CLIMATE CHANGE IN AFFECTING THE METROPOLITAN AREA



Flood events occurred in 2016 and 2018. An increase in the frequency of more intense rainfall (+10 %) in the future

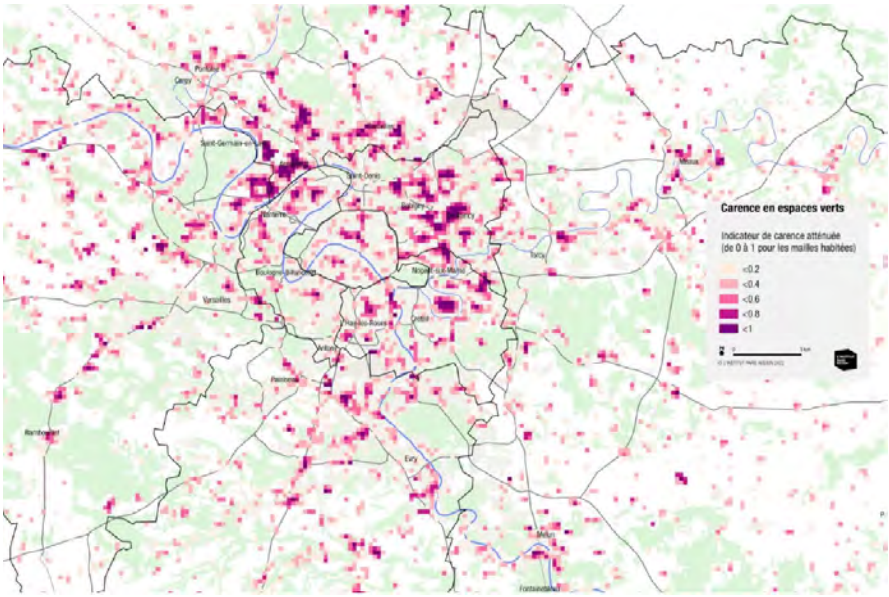


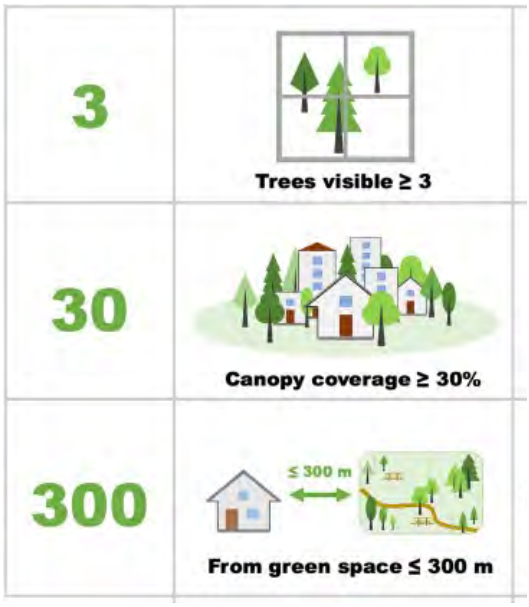
More heatwave (already happened in 2003, 2013 and 2026). Over the period 2016–2025, the Île-de-France region has already warmed by +1.4 °C compared with 1976–2005

ACCESS TO GREEN SPACE IS LOW IN THE METROPOLIS

53 cities have less than 10m² of green space per inhabitant and low accessibility

(*Laruelle et al., 2019*)





Konijnendijk, C. (2021)

THE 3 - 30 - 300 RULE IS NOT MET

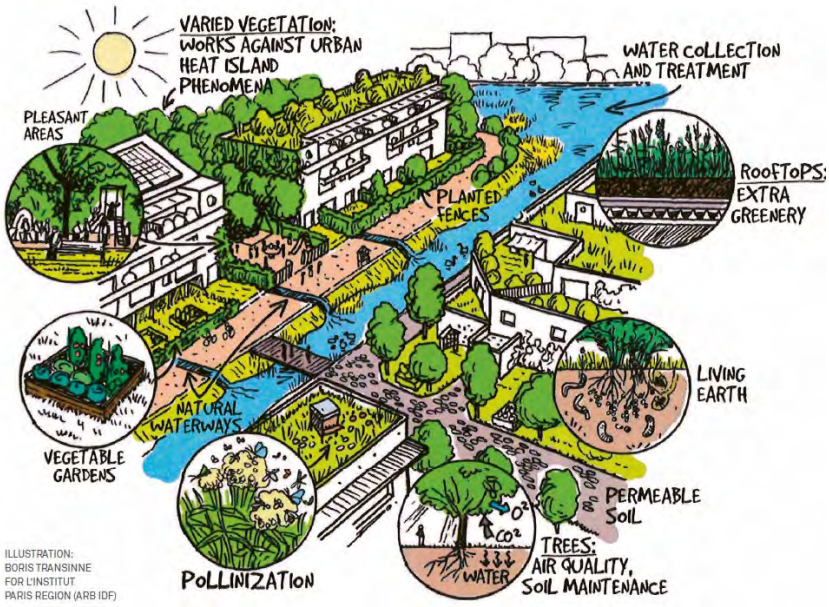
Table 3. Summary statistics of how well existing conditions in each city satisfy the 3–30-300 rule.

Current status with respect to 3–30-300 Rule (% achieved)	Paris	Aarhus	Velika Gorica
3-component (buildings)	96.9	73.2	99.6
30-component (neighbourhoods)	68.9	95.0	98.0
300-component (buildings)	39.4	96.0	78.6

Owen, D., Fitch, A., Fletcher, D., Knopp, J., Levin, G., Farley, K., ... & Jones, L. (2024). Opportunities and constraints of implementing the 3–30–300 rule for urban greening. *Urban Forestry & Urban Greening*, *98*, 128393.

THIS IS WHY NATURE-BASED SOLUTIONS ARE NEEDED !





NATURE-BASED SOLUTIONS : A REVIEW OF PROJECTS

MANAGING FLOOD RISK THROUGH URBAN WETLANDS



12 ha
managing
55 000 m³
of water



REOPENING RIVERS AND CREATE SPONGE CITY









Cité Floréal, Saint-Denis

A PARKING LOT TURNED INTO A COOL PLACE WITH TREES





230 m² de-sealed former car park)

Before the project : heat island **monitoring**, soil survey (agronomic quality and level of pollution)

3 tree species adapted to heat (birch, aspen and willow).

An average **reduction of -3.1 °C** in temperature





4,000 m² of open ground, fully de-sealed and planted with vegetation.

478 trees planted at high density

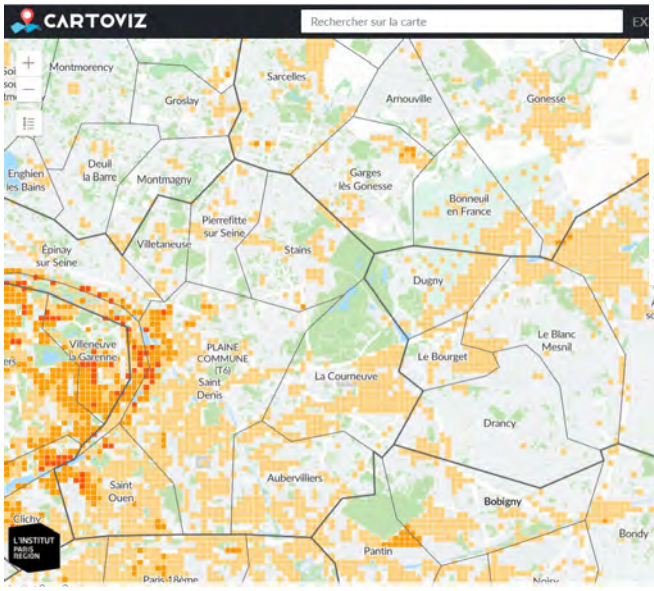


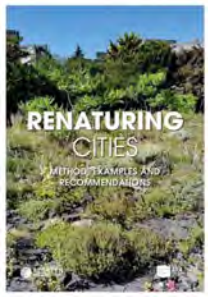
16 different species selected for their resilience to climate change (English oaks, common hornbeams, wild cherries, holm oaks, Montpellier maples)

An expected temperature **reduction of 4 °C** on the site and its immediate surroundings during heatwaves

A HUGE POTENTIAL FOR DEPAVING AND RENATURING !







DEPAVED FORMER RACECOURSE CAMP IN A FOREST



3.5 hectares of tarmac and concrete surfaces were dismantled and removed

4,125 trees and plants were planted

1.4 million euros



Depave to create a “Happy garden” in Aubervilliers







1,600 m² of car park partially de-sealed (No bitumen or concrete waste left the site.
€35,000
5 days of work









DEPAVED FORMER CAR PARK TO CREATE AN URBAN AGROFOREST









OASIS SCHOOLYARDS

In 2024, 245 Oasis schoolyards depaved

70 hectares available in the long term

Average cost of works: 350 € per m²

SOME RESEARCH PROJECTS



EVALUATE THE CONTRIBUTION OF URBAN AGRICLTURE TO BIODIVERSITY AND ECOSYSTEM SEVICES

Urban parks and gardens(Florilèges prairies urbaines, 2019) **13**

Green roofs (GROOVES, 2020) **14**

Urban farms **16**

Vigie-Flore comparison (number of spontaneous species in 10m²)

4,2 Rural farming areas (Vigie-Nature, 2019)

12 Ile-de-France meadows (Florilèges prairies urbaines, 2019)

14 Browfields (Muratet, 2019)

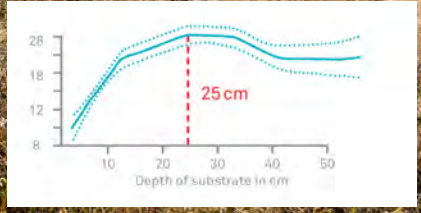
19,1 Cemeteries (COOL, 2021)

Ferme des Possibles. (Stains, 93)

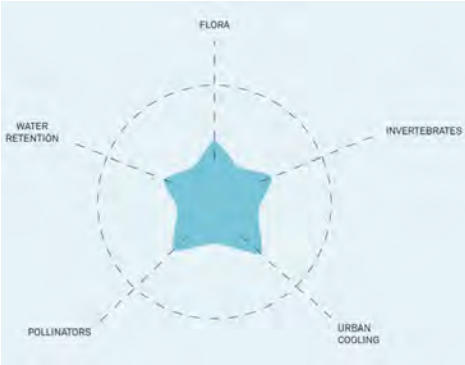
EVALUATE THE CONTRIBUTION OF GREEN ROOFS TO BIODIVERSITY AND ECOSYSTEM SEVICES



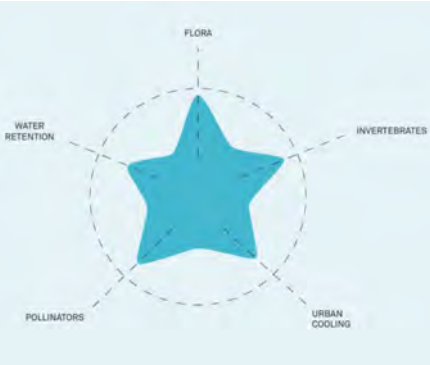
GROOVES (Green Roofs Verified ecosystem services)



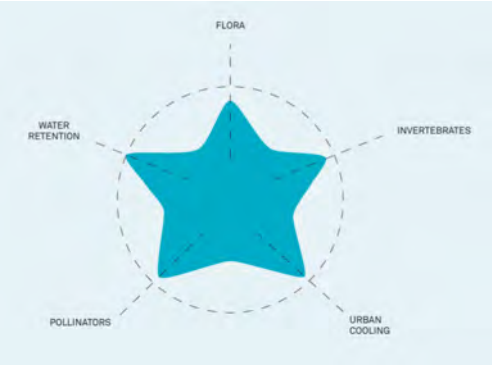
WHAT KIND OF ECOSYSTEM SERVICES CAN WE EXPECT FROM GREEN ROOFS



EXTENSIVE



SEMI-INTENSIVE



INTENSIVE

Info réunion et/ou date





COOL (CEMETERIES : OBSERVATION OF LIFE)



45 cemeteries studied
assessment of biodiversity based on management practices (based on citizen science programmes)

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IN THE FUTURE ?

WHAT WILL BE OUR NEW NATURE IN PARIS ?

- ***19th–20th centuries … DECORATIVE APPROACH***
  The concept of 'green' spaces, nature viewed as "street furniture", through hygienism. Heritage of Versaille's gardeners.



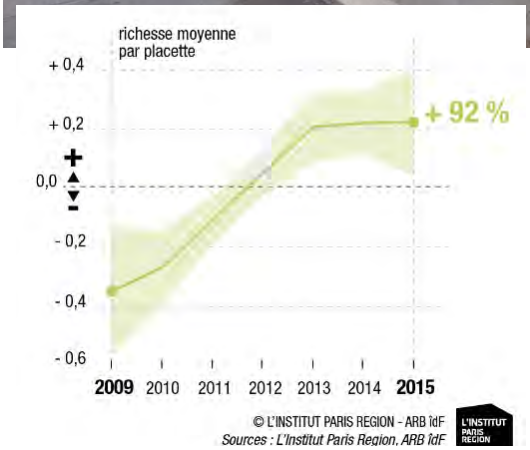
- ***Nowadays… UTILITARIAN APPROACH***
  Nature must provide services, nature-based solutions such as cooling, storing water and carbon, saving us money, etc.



- ***In the next future … : ETHICAL APPROACH***
  wilderness, restoration, spontaneous, wild nature in the city,… Naturalistic approach (the point of view of species ☺)






richesse moyenne
par placette
+ 0,4
+ 0,2
0,0
- 0,2
- 0,4
- 0,6
+ 92 %
2009
2010
2011
2012
2013
2014
2015
© L'INSTITUT PARIS REGION - ARB îdF
Sources : L'Institut Paris Region, ARB îdF






NO MANAGEMENT AT ALL ?


INSTEAD OF FORCING NATURE IN THE CITY ?
NOTE RAPIDE
DE L'INSTITUT PARIS REGION N°904
BIODIVERSITÉ
Juin 2022 • www.institutparisregion.fr
QUAND LES ABEILLES DOMESTIQUES CONCURRENCENT LES POLLINISATEURS SAUVAGES
950
ESPÈCES D'ABEILLES SAUVAGES EN FRANCE MÉTROPOLITAINE
Près de 80 %
DES INSECTES ONT DISPARU EN 30 ANS
de 650 à 1 500
ÉVOLUTION DU NOMBRE DE RUCHES À PARIS ENTRE 2019 ET 2021
L'INSTITUT PARIS REGION
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Thank you !

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