



Urban tree planning and planting in Paris



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Green Spaces and Environment – City of Paris

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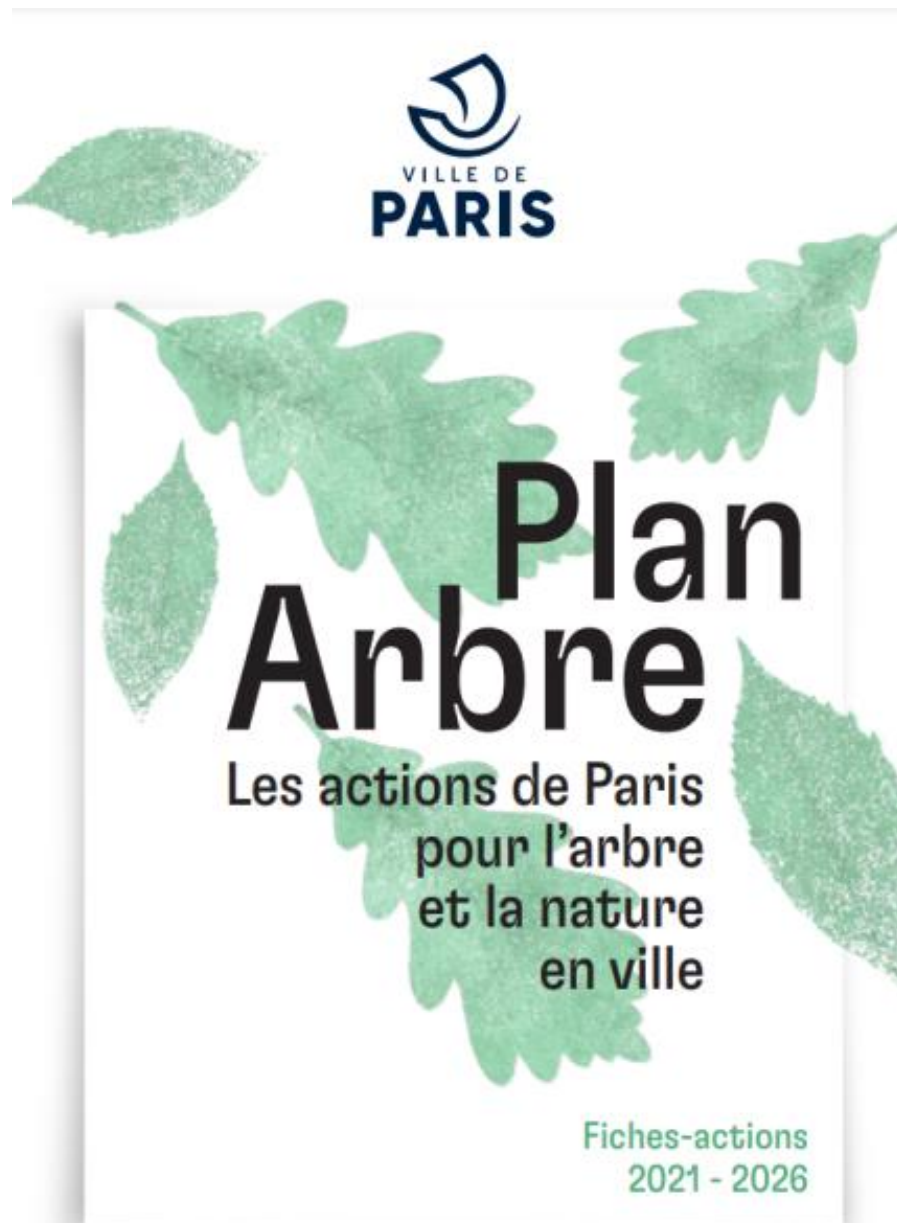
01 Trees in Paris, the Paris Tree Plan and greening Paris programme

02 Focus on new tree plantation projects

03 Studying urban trees and getting ready for climate change

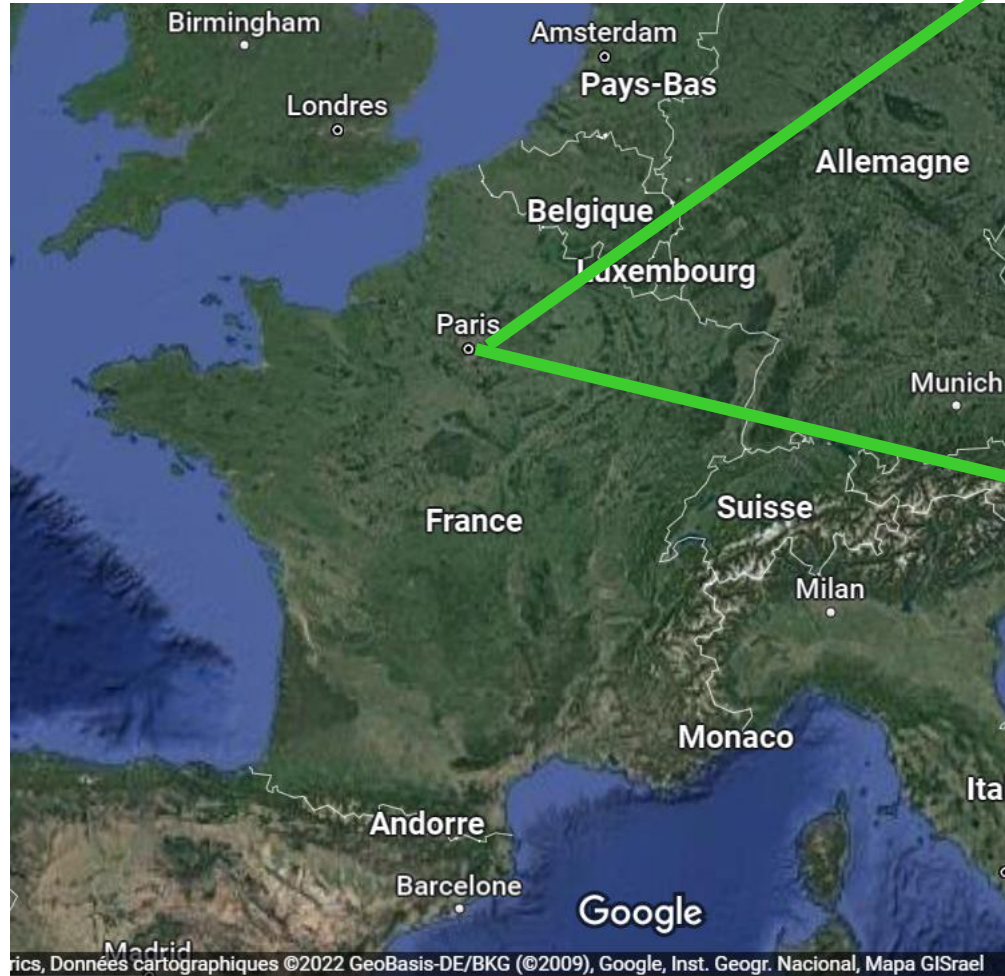
01

Trees in Paris, the
Paris Tree Plan and
greening Paris
programme



Welcome to Paris!

General facts



105 km² (40,5 sq mi)

Paris = the inner city + 2 woods

≈ 2.2 million inhabitants in Paris

≈ 12.2 million inhabitants in the Paris region

Trees in Paris

2022 facts and figures

Already + 500,000 trees managed by the City of Paris:

- **+ 200,000 trees in the inner city**, including :
 - ≈ 100,000 trees in streets, avenues, etc.
 - ≈ 50,000 trees in green parks
 - + 30,000 trees in cemeteries
 - ≈ 15,000 trees in public buildings (schools, nurseries, sports facilities, etc.)
 - + 6,000 trees along the ring road
- **≈ 300,000 trees in the woods of Boulogne and Vincennes**

Additional ≈ 100,000 trees in private land and state owned areas

An overall figure of ≈ 600,000 trees in Paris

Canopy cover: 21% of the Paris territory



Diversité des essences d'arbres dans le bois de Boulogne (Crédit : Clément Dorval, Ville de Paris)



Parc Floral (bois de Vincennes) en automne (Crédit : Marie Gantois, Ville de Paris)

The Paris Tree Plan (« Plan Arbre »)

Adopted by the Paris City Council in October 2021

The Tree Plan includes 23 actions organised in 4 sections:

- 1: Structure and implement a tree plan for Paris
- 2: Improve knowledge and manage the evolution of the tree population
- 3: Protect and recognise the importance of trees in the city
- 4: Mobilise and engage stakeholders, including inhabitants

Paris Tree Plan: 170,000 trees planted by 2026

- In streets
- In new green spaces
- Along the ring road
- In the 2 woods
- In cemeteries
- On private land
- Within public sites
- Plant urban forests



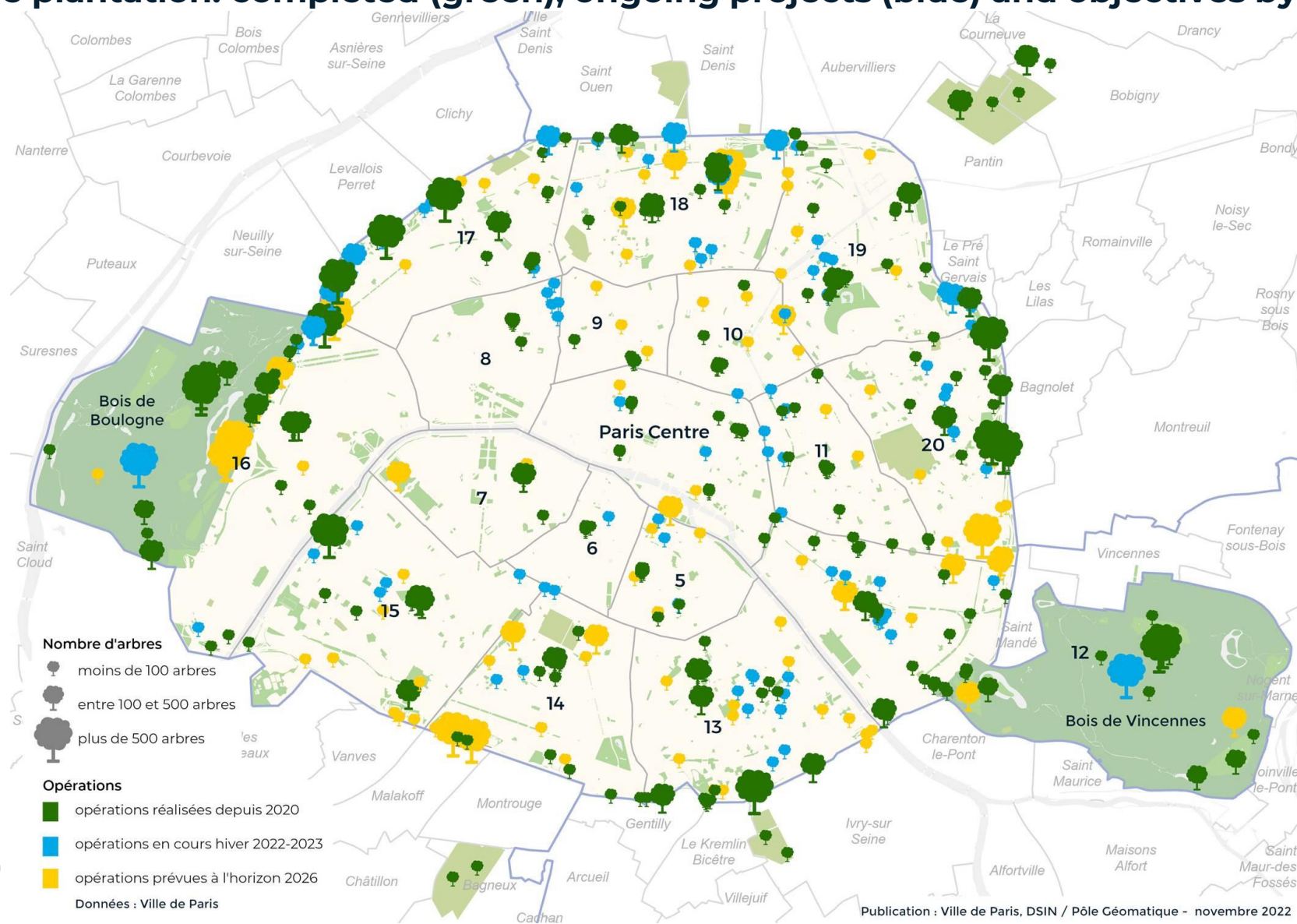
Juvenile trees locally produced and ready to plant in Paris



Example of the « linear urban forest », 19th district

The Paris Tree Plan (« Plan Arbre »): plant 170,000 trees by 2026

Paris tree plantation: completed (green), ongoing projects (blue) and objectives by 2026 (yellow)



Since 2020:

- 38,550 trees planted in the woods, along the ring road and in the streets

New planting season (2022-2023):

- 21,000 new trees

The Paris Tree Community Engagement Charter (« Charte de l'Arbre »)

From the Paris Tree Plan

Objectives:

- Encourage land owners in Paris to engage in tree planting and tree protection
- Give them advice on increasing and managing urban tree population

Tree Community Engagement Charter: 10 engagements & 17 themed pamphlets to better understand and manage tree population in Paris:

1. Develop tree population
2. Choose the right tree for the right place
3. Provide good planting conditions
4. Give special care to young trees / saplings
5. Apply sustainable pruning and thinning
6. Watch out for tree health
7. Take care of unique and special trees
8. Avoid and reduce tree felling
9. Compensate felling and contribute to the increase of urban nature
10. Well managed work sites



Greening Paris Programme

Policy mandates 2014-2020 and 2020-2026

2014-2020 → + 20,000 trees planted within Paris

2020-2026 → plant 170,000 trees in Paris

Green 100 ha of public spaces by 2026

30 ha green parks opened to the public

Create « garden-streets »

Green buildings: green roofs and green facades

Create 30 OASIS courtyards / year

Develop urban agriculture with the Parisculteurs

In line with the objectives of Paris Masterplans:

- Paris Resilience Strategy (2017)
- Paris Climate Action Plan (2018)
- Paris Biodiversity Plan (2018)
- Paris Tree Plan (2021)



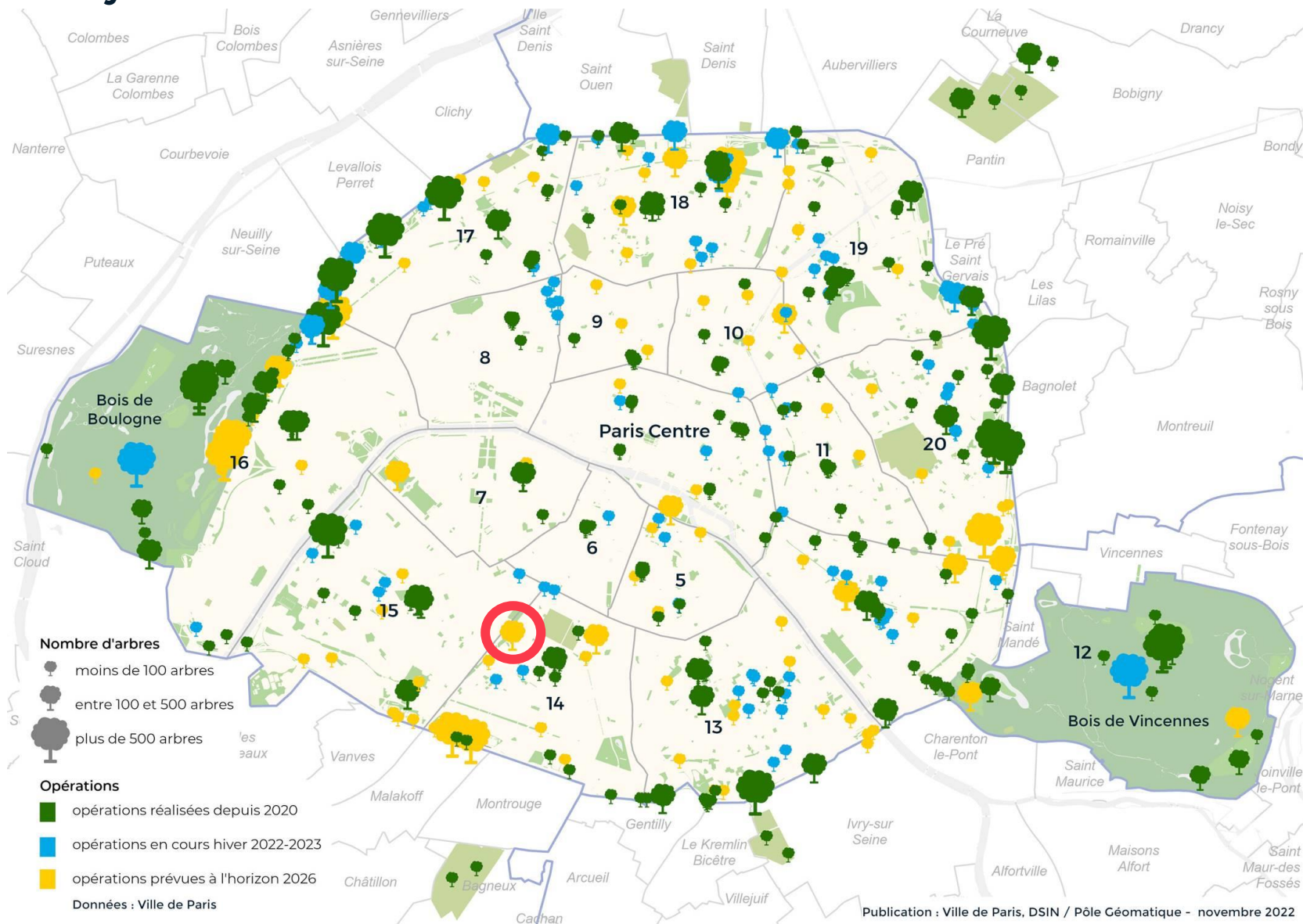
02

Focus on new tree
plantation projects



Urban forest at Place de la Catalogne

470 trees planted by 2026



Urban forest at Place de la Catalogne

470 trees planted by 2026

- 12,400 m² project area (= 1.24 ha = 3 acres = 133,500 sq ft)
- 4,000 m² urban forest (= 0.4 ha = 1 acre = 43,000 sq ft)
- 50% forest area accessible to the public, 50% not accessible in order to protect the trees and plants



Now



Urban forest Project

Urban forest at Place de la Catalogne

Place de la Catalogne before the project



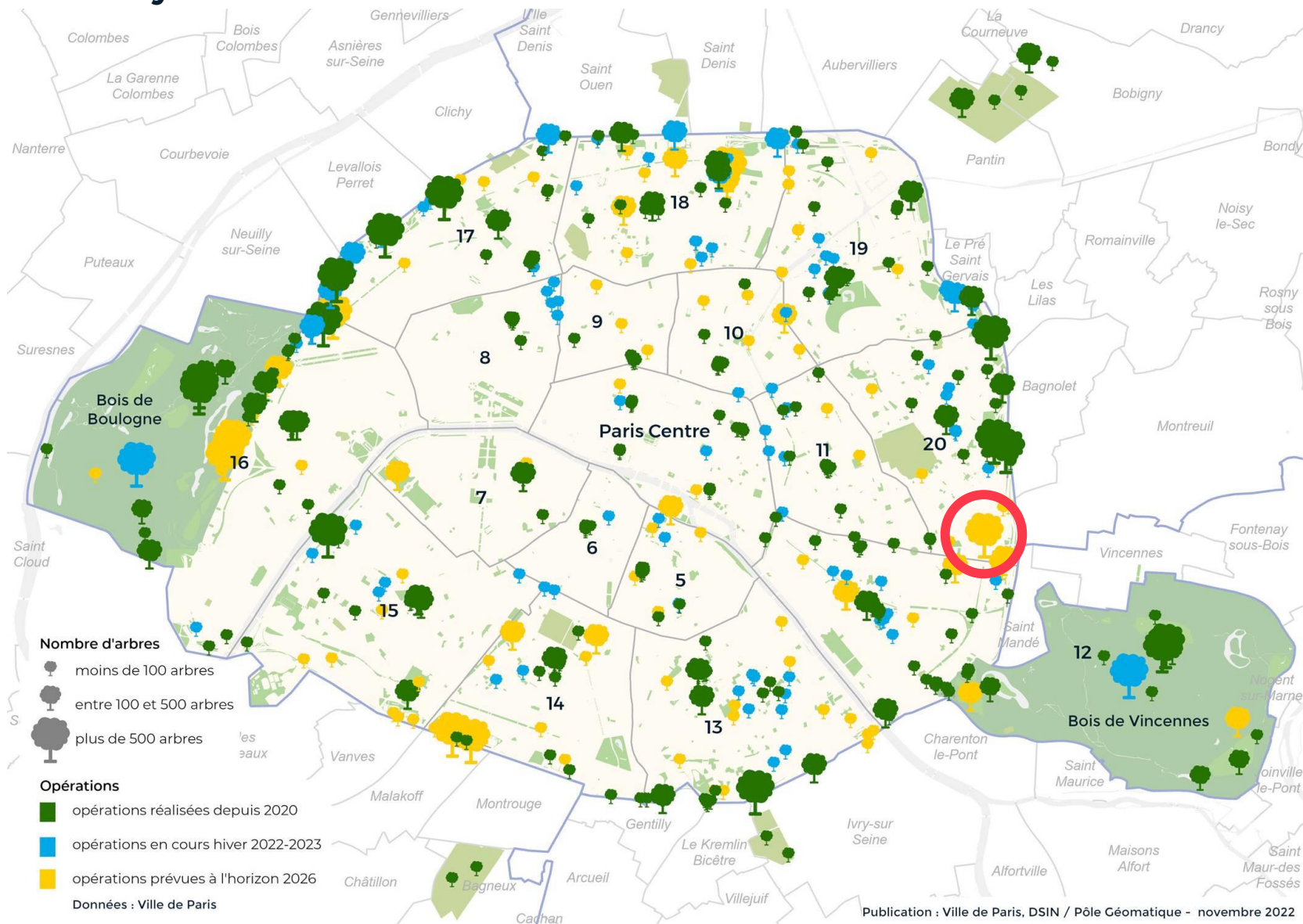
Urban forest at Place de la Catalogne

Projected urban forest after 20 years



Urban forest at PC20 (Charonne Urban Forest)

+2,300 trees planted by 2024



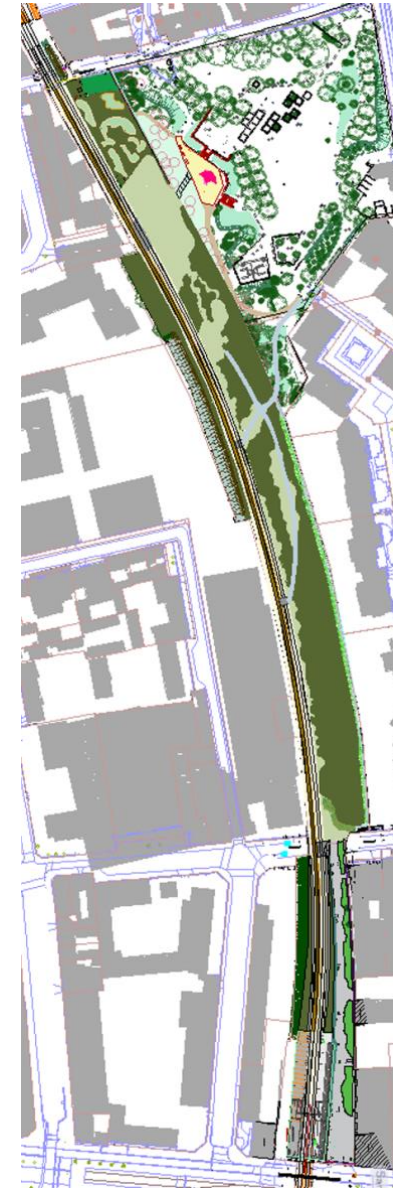
Urban forest at PC20

+2,300 trees planted by 2024

- On a former railway wasteland (3.5 ha), project to plant an urban forest, a meadow and a clearing fully accessible to the public
- 16,100 m² planted area in the project (= 1.61 ha = 4 acres = 173,300 sq ft)
- 5,211 m² urban forest (= 0.5 ha = 1.2 acre = 56,090 sq ft)



Now



Urban forest Project

Urban forest at PC20 (Charonne Urban Forest)

+2,300 trees planted by 2024



Former railway

Meadow

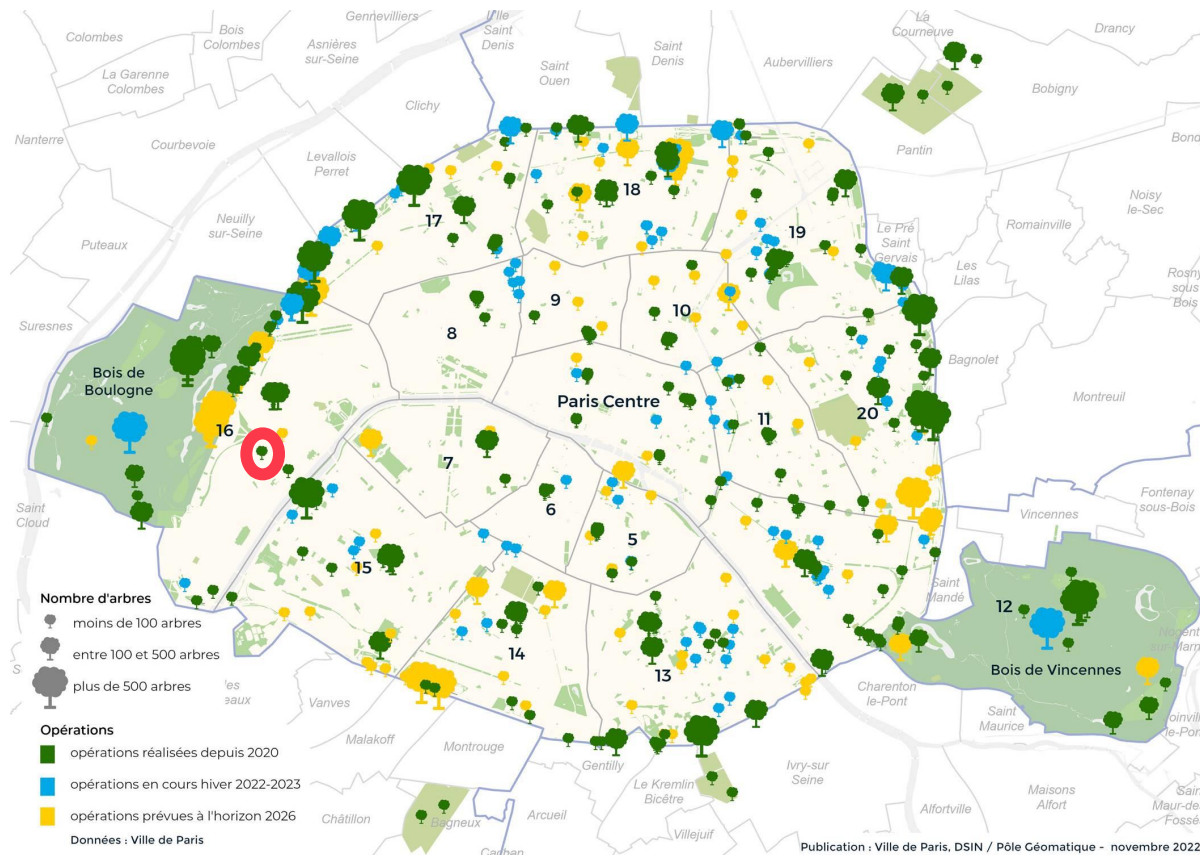
Urban forest Project

Clearing

Greening school streets

An example planted in 2021

Rue Gustave Zédé (16th district):
Pedestrianised and greened street along the school, with
new trees planted in 2021



Before (picture taken in May 2018)



Now (picture taken in May 2022)

03

Studying urban trees
and getting ready for
climate change



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Studying urban trees (1/2)

City of Paris leading applied research on urban trees for over a decade

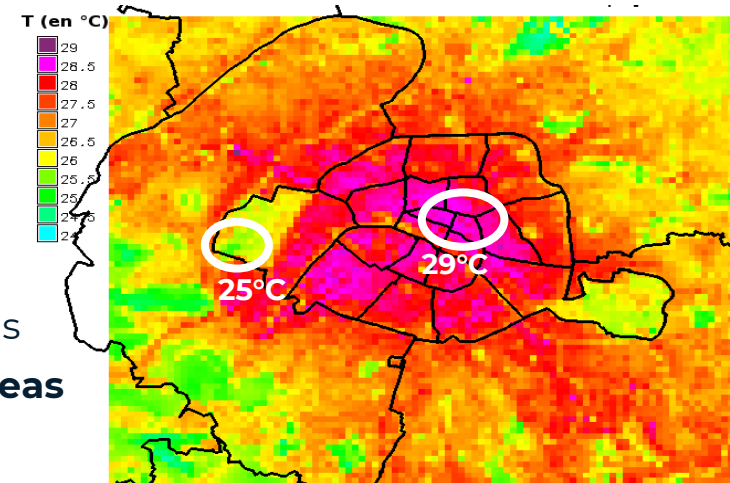
« EPICEA » study (2008-2012): local climate modelling during a historic heatwave in Paris

→ **Clear Urban Heat Island (UHI) effect: cooler temperatures in the woods & tree areas**

→ **Greening adaptation scenario: -5°C in the daytime, -2°C at night time**

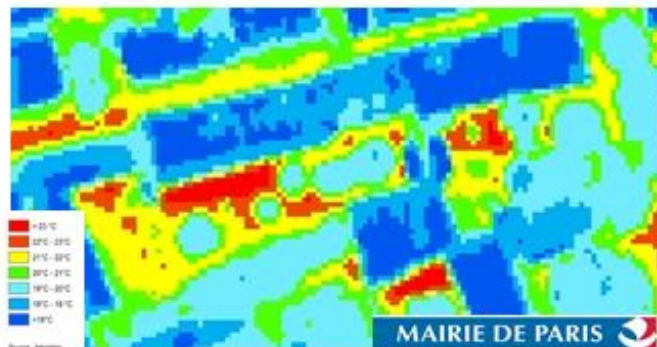
« Thermoregulation » study (2014-2016): monitoring cooling provided by green spaces

→ **Summer aerial infrared thermography highlighting cooling effect from trees and positive impacts of trees mitigating UHI effect**



Modeled UHI during 2003 heatwave

© EPICEA, Météo-France



Zoom sur les cours des écoles rue Riblette (Paris 20°)
Survol thermographique de Paris durant la nuit caniculaire du
16 au 17 août 2016 à 4h du matin



Photo aérienne des cours des écoles rue Riblette (Paris 20°)
© Google maps



« Trees and Climate » study (2018-2024): monitoring 9 species of urban trees during 4 years

→ **Different behaviours during drought spells and heatwaves depending on the species**

Studying urban trees (2/2)

Examples of other ongoing studies led by City of Paris

« SESAME » study (2021-2023): ecosystemic services provided by over 100 species of trees

→ **A strong database on urban trees in Paris**

« Canopy » study (2021-2024): comparing different species of trees on their canopy cover depending on their age and planting conditions

→ **8 species compared in Paris in 2022**

→ **Perspective to follow-up on tree canopy cover with satellite data from 2023**

Regular follow-up on tree health and potential threats

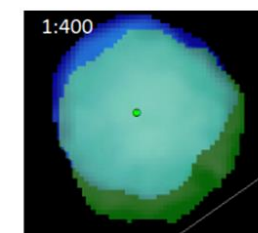
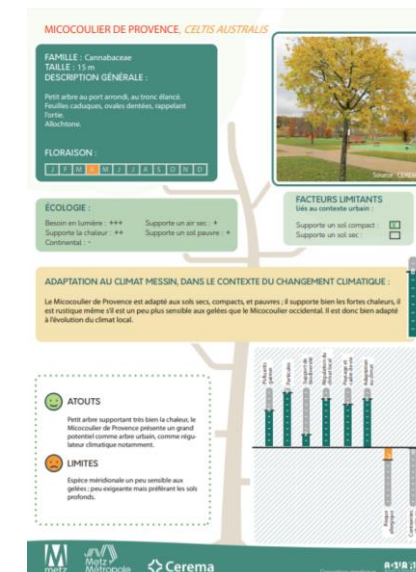
→ **Processionary caterpillars**

→ **Canker on plane trees**

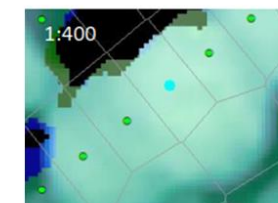
→ ...



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Platanus de la Place de Stalingrad (75010)
Hauteur de l'arbre : 22m ; Canopée de l'arbre : 316m²



Platanus de la Rue Joseph Kessel (75013)
Hauteur de l'arbre : 30m ; Canopée de l'arbre : 61m²

Trees and Paris projected climate

A tree planted in 2022 should still be there in 2100

Main climate change challenges for Paris:

- Climatic changes happen faster than projected
- New trends: warmer overall temperatures & milder winters
- Heatwave summers
- Drought spells
- Less frequent but more intense rainfall
- Uncertainties on some other extremes: floods? Fires? Storms?

Trees help adapting Paris to climate change:

- Cool islands
- Intense rainfall regulation
- Habitat for biodiversity

But trees can also be vulnerable to new climate conditions:

- Urban environment → drying conditions + diverse pollutions (air, water, soils)
- Climate extreme events → drought spells, heatwaves, fires, flood, storms



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City of Paris inner resources

From tree nurseries to lumberjack pruners

Producing and buying trees to plant in Paris:

- 4,000 tall trees produced / year (& 500 juvenile trees) by the Horticulture Production Centre of the City of Paris
- 8,000 tall trees bought / year (& 25,000 juvenile trees) to cover the yearly plantation needs

Staff at the Tree and Wood Department of the City:

- 200 staff dedicated to tree maintenance in Paris (planting, pruning, felling, etc.)
- About 1.5% of the trees renewed each year



A tree species guide in 2023

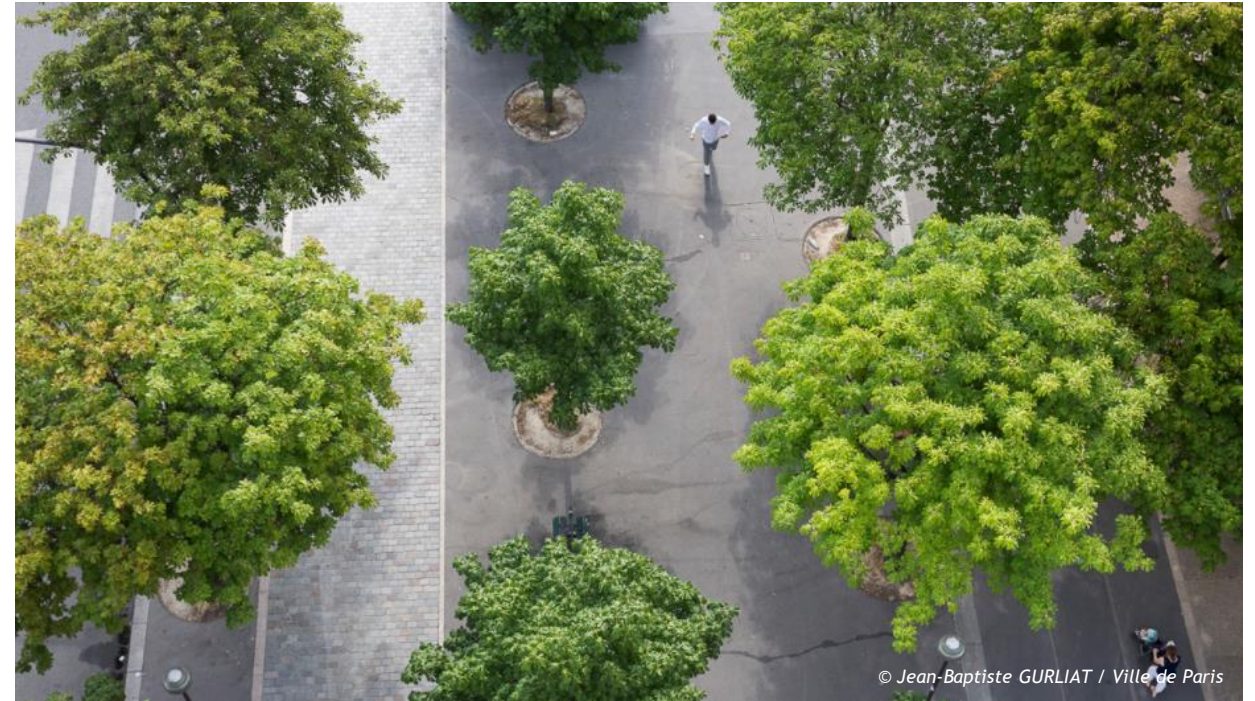
Resulting from local studies and the Paris Tree Plan

Objectives:

- Diversify tree species in order to prepare for new climate conditions and sanitary threats
- Help choosing tree species depending on the project



Pépinière pour les futurs arbres de la capitale.
Jean-Pierre Viguié / Ville de Paris



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Thank you for your attention!