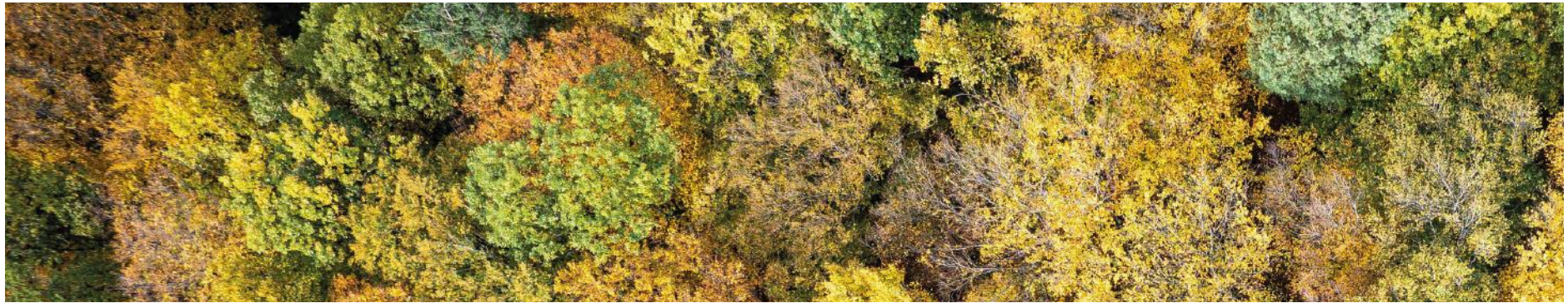
Interreg
North-West Europe
Co-funded by the European Union

MigFoRest

MigFoRest : deploying assisted migration in North-West Europe

August 2025



THE PROJECT

Sense of urgency

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De Standaard Nieuws Opinie Inspiratie Podcasts

Onze bossen zijn ziek

© kvg

Het Instituut voor Natuur- en Bosonderzoek (Inbo) berekende dat 21 procent van de bomen minstens een kwart van zijn kruin mist. Het medicijn? Minder stikstof uitstoten en voorkomen dat de temperatuur te veel stijgt.

Le Monde 12 octobre 2023

Dans la forêt française, une mortalité en hausse de 80 % en dix ans et des dépérissements massifs

Guardian

News Opinion Sport Culture Lifest

Environment ▸ Climate change Wildlife Energy Pollution

Environment

Scientists say halting deforestation as urgent' as reducing emissions

Protecting and restoring forests would reduce 18% of emissions by 2030 and help to avoid global temperature rise beyond 1.5C

Globale Abholzung von Wäldern gestiegen

6,6 Millionen Hektar Wald gingen 2022 verloren

Consequences

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Next to trees declining because of lack of water and risk of fire …

More or new **pests**

Bark beetles affecting spruces

More or new **pathogens**

Ash trees affected by chalarosis

The challenge

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Trees do migrate …

Speed of climate change:

≈ 1000 m/year

but not fast enough

Natural migration of species towards regions with a favorable climate (seed & pollen dispersal):

< 500 m/year, or even 100 m/year

What is Assisted Migration?

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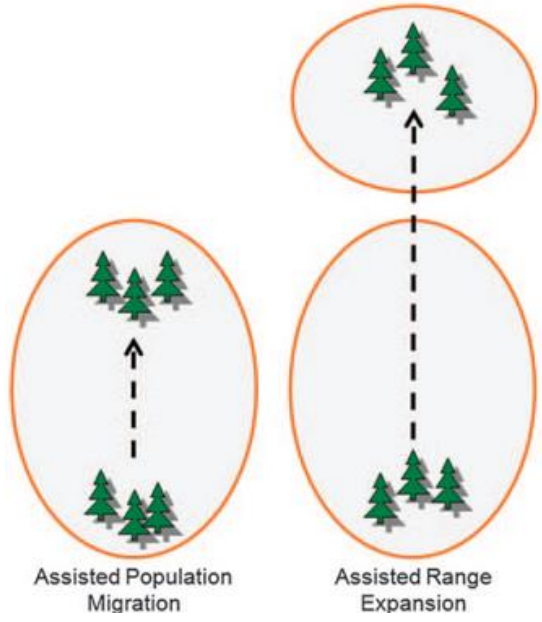
The movement of species and populations to facilitate the **natural expansion of their range** in response to **climate change**

In the context of MigFoRest, 2 forms of assisted migration are experimented:

YES Assisted population migration (also assisted genetic migration or assisted gene flow) – moving seed sources or populations to new locations within the historical species range. *Example: planting in Belgium of sessile oaks (Quercus petraea) from Southern France*.

YES Assisted range expansion – moving seed sources or populations from their current range to suitable areas beyond the historical species range, facilitating or mimicking natural dispersal. *Example: planting in Belgium of maritime pines* (*Pinus pinaster*)

NO Species introduction - (also species rescue, managed relocation, or assisted species migration) – moving seed sources or populations to a location far outside the historical species range, beyond locations accessible by natural dispersal, that is physical barriers that could not be crossed naturally (oceans, deserts, …) *Example: planting in Belgium of liquidambar (Liquidambar styraciflua)*



Potential sourcing area

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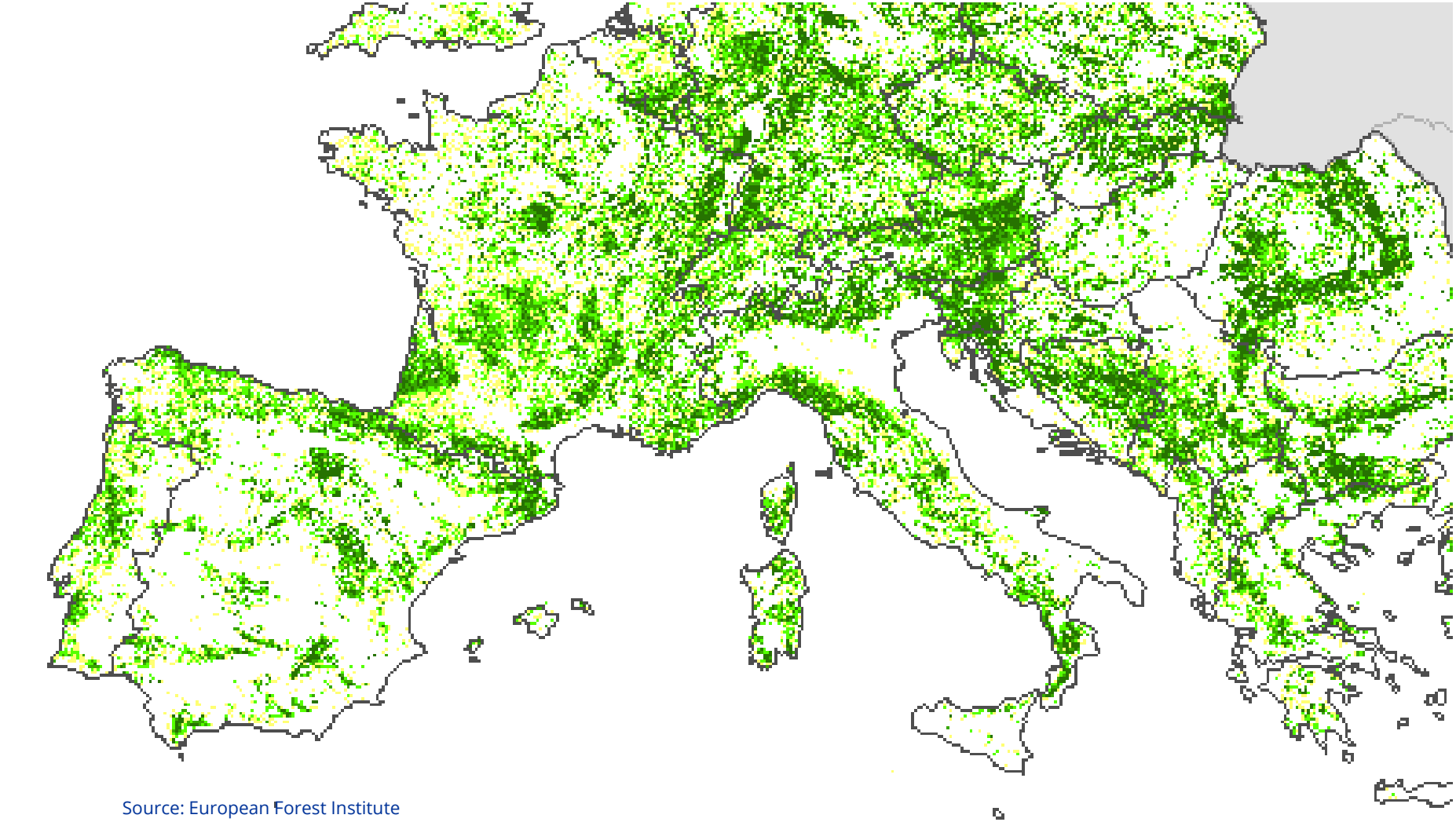

Source: European Forest Institute

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Assisted Migration to Increase Forest Resilience in North-West Europe

Object : deploying assisted migration of species (assisted rage expansion) and provenances (assisted gene flow) in North-West Europe (Belgium, France, Germany)

6 partners from BE, FR, DE cooperating from 2024 - 2028

EU funding	Total project budget
€ 4.3 million	€ 7.1 million

SRFB · KBBM
Wallonie recherche CRA-W
RESEARCH INSTITUTE NATURE AND FOREST
Office National des Forêts
NEOSYLVA
FVA Forest Research Institute Baden-Württemberg

Project objectives

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The development of a **common strategy** for implementing assisted migration in North-West Europe.

The identification of the **tree species** concerned, including analysis of their biological potential, invasiveness and genetic diversity.

The deployment of assisted migration in **different territories** in Belgium, France and Germany, including the planting of at least **100,000 trees**.

The creation of min **3 seed orchards** to supply forest managers in the future.

The development of a tailor-made **awareness-raising and training material** for target audiences: public authorities, forest owners and managers, nurserymen and the general public.

Awareness and training

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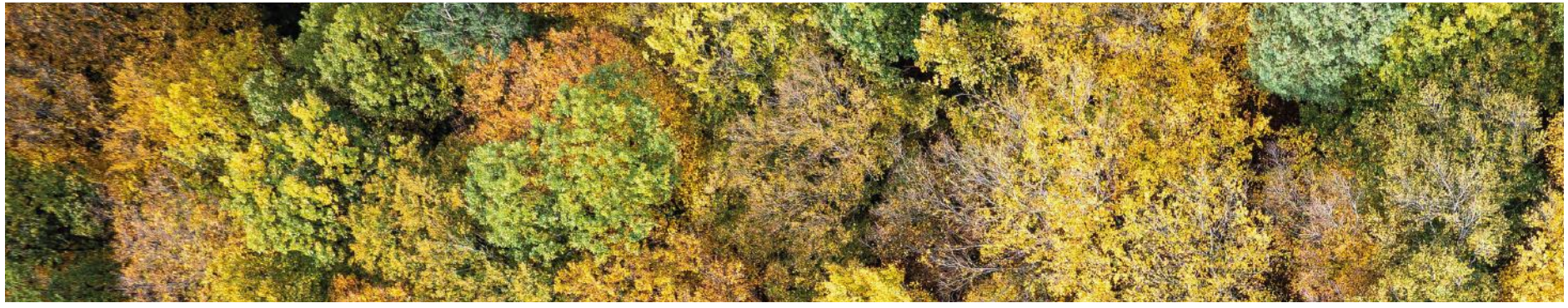
- **« Demo-sites»**: living laboratory, providing a practical setting for conducting research, implementing innovative practices and evaluating their effectiveness. Also acting as easily accessible demonstration plots to share knowledge to stakeholders, from expert foresters to schools and general public.
- **Info and training sessions** tailored for forest owners, experts, policy makers, nurserymen, wood professionals, …
- **Technical guides**
- **Practical guidelines** for implementing assisted migration in NWE



THE PLANTING SITES

7 forest areas

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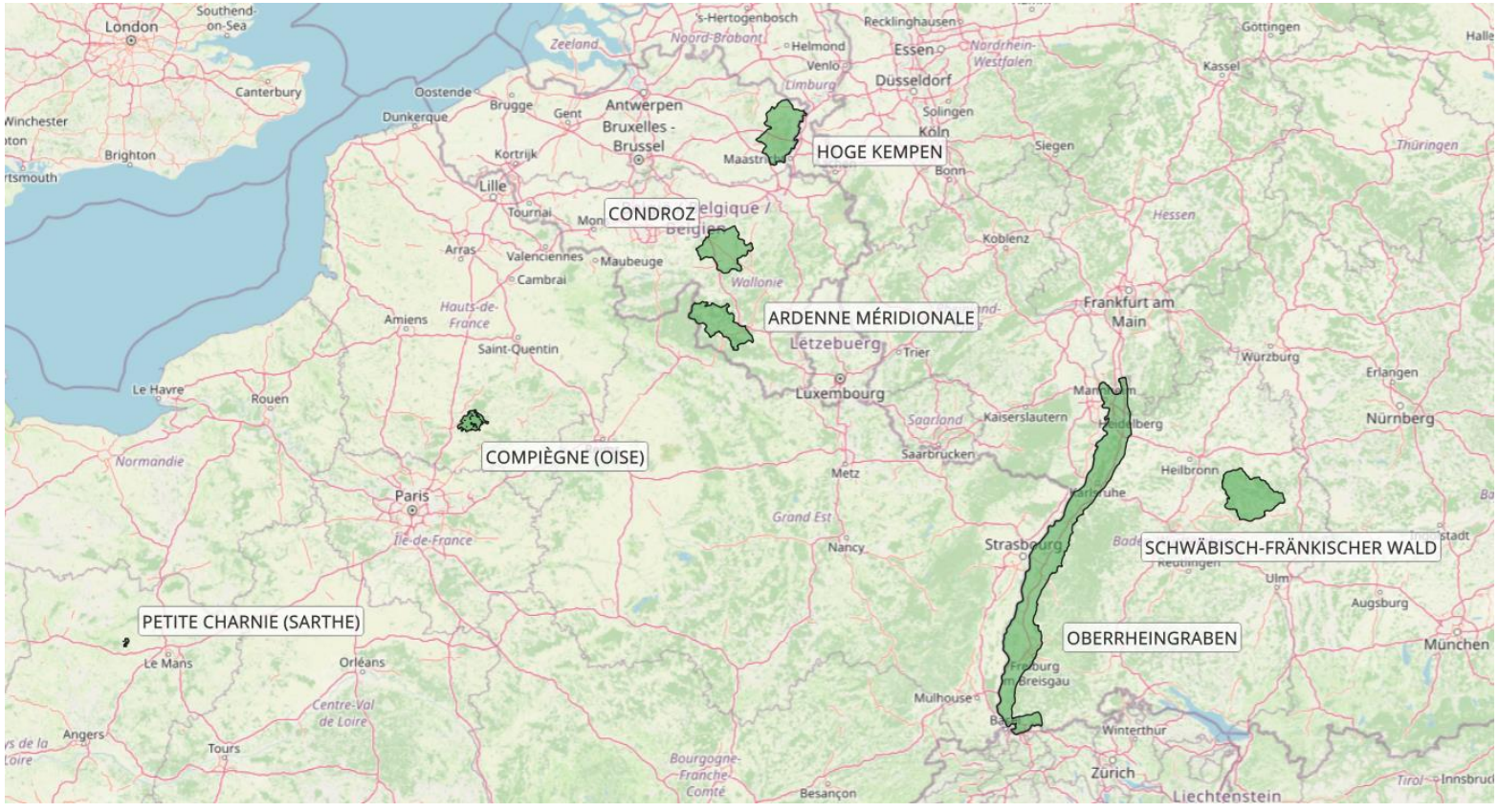

Selection of planting sites

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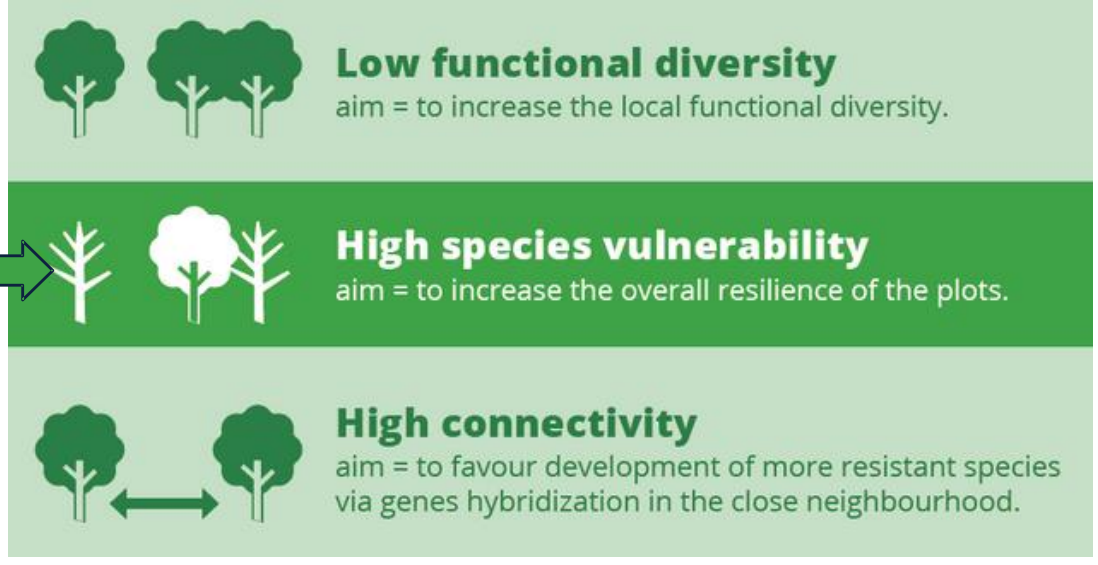
Mapping within the 7 selected territories

Contact with the private or public owners

Centralized sites creating a **complex functional network**

Combining **3 selection criteria***



*This is the ideal view. All planting sites might not have the potential to combine the 3 criteria

RISKS & OPPORTUNITIES

Risks

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Trees not adapted to current and future climate.

For example: tree species adapted to a warmer climate in the future but not withstanding current late frosts

Invasive risk (although mitigated by species selection)

Sanitary risk: introducing pests or diseases into new areas. Strongly reduced by growing the imported seedlings in nurseries in North-West Europe

Disturbing the ecosystem in place.

Will be investigated and closely monitored. The biological potential will also be assessed and valorized

Opportunities

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Enhancing the genetic diversity of our forests, applying the complex functional network approach

Increasing forest resistance and resilience
Maintain crucial ecosystem functions (timber production, biodiversity, carbon sequestration, ...)

We integrate with existing practices used for reforestation, keeping costs under control

Provide controlled seed sources for valuable trees

SPECIES AND PROVENANCES

Species selection

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- **Level 1**:
  - Assessment of **genetic diversity**
  - Assessment of **biological potential** and **invasiveness**
  - **Own production** of seedlings (INBO, ONF, FVA)
  - Creation of **seed orchards**
  - **Planting** in the pilot territories
- **Level 2**:
  - Assessment of **biological potential** and **invasiveness**
  - **Planting** in the pilot territories and in the Demo-sites
- **Level 3**:
  - Assessment of **biological potential** and **invasiveness**
  - **Planting** in the Demo-sites only

Species selection

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Prioritary species

A. alba
Silver fir

A. cephalonica
Greek fir

A. pinsapo
Spanish fir

S. torminalis
Wild service tree

S. domestica
Service tree

Q. petraea
Sessile oak

Q. robur
Pedunculate oak

Q. pubescens
Pubescent oak

T. cordata
Small-leaved lime

T. platyphyllos
Large-leaved lime

Secondary species

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Level 2 (Pilot territories & Living Labs)	Level 3 (Living Labs)
Hungarian oak (*Q. frainetto*) Pyrenean oak (*Q. pyrenaica*) Zean oak (*Q. canariensis*) Whitebeam (*S. aria*) Common beech (*F. sylvatica*) Oriental beech (*F. orientalis*) Norway maple (*A. platanoides*) Italian maple (*A. opalus*) Hedge maple (*A. campestre*) Sycamore (*A. pseudoplatanus*) Scots pine (*P. sylvestris*) Austrian pine (*P. nigra*) Maritime pine (*P. pinaster*)	King Boris fir (*A. borisii-regis*) Silver lime (*T. tomentosa*) Montpellier maple (A. *monspessulanum*) Stone pine (*P. pinea*) Macedonian pine (*P. peuce*) Bosnian pine (*P. heldreichii*) Aleppo pine (*P. halepensis*) Turkey oak (*Q. cerris*) Cork oak (*Q. suber*) Holm oak (*Q. ilex*) Italian alder (*A. cordata*)

Selection of provenances

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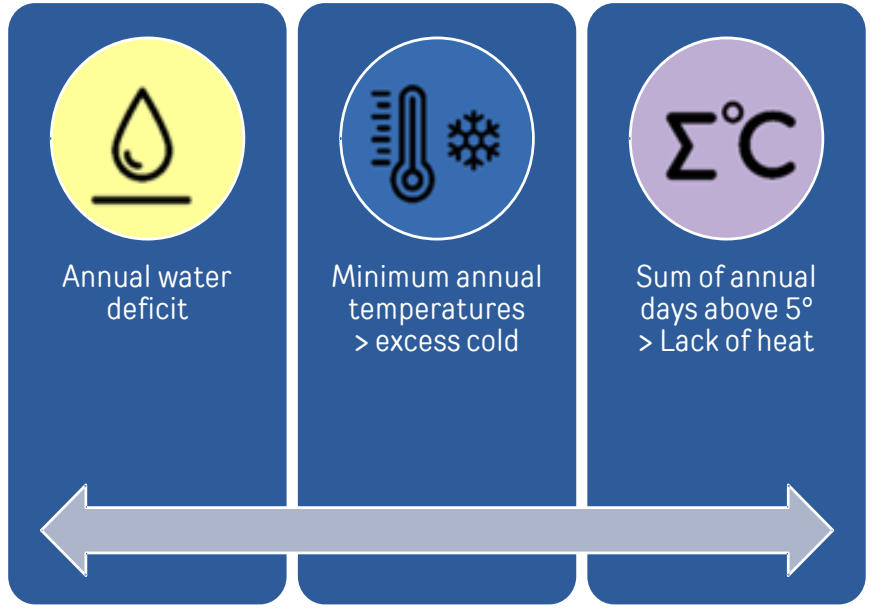
- Only from Europe
- Combining 3 variables (IKS model):
- Applying thresholds for a given species, based on current and future climate data
- Using ClimEssences and Forematis databases



Selection of provenances

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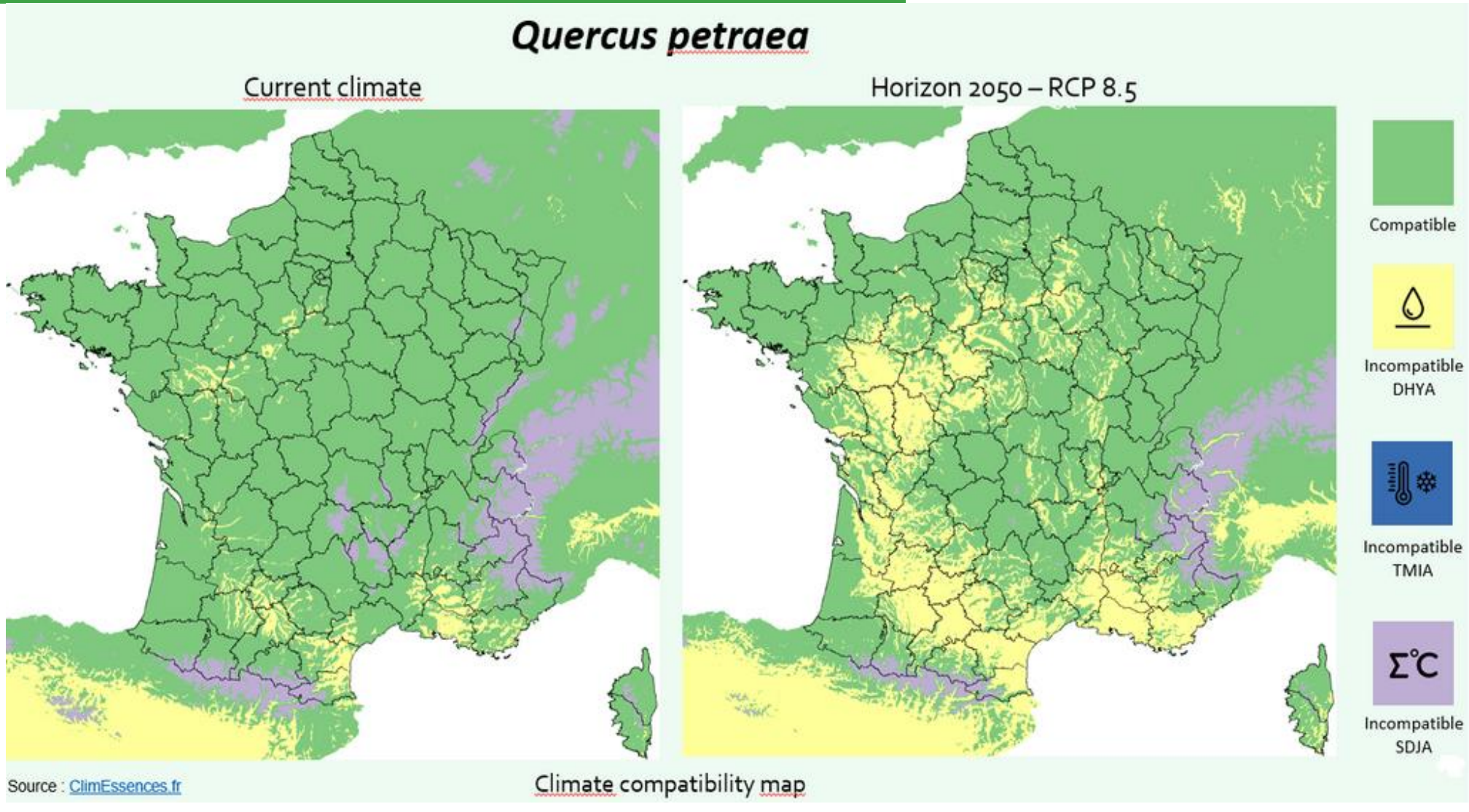

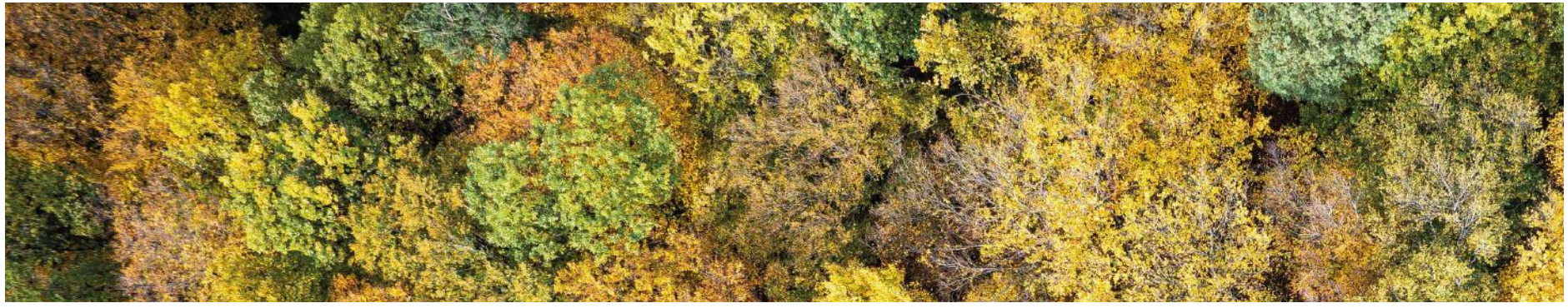

PLANTING METHODS

Planting methods

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- **Enrichment planting in clumps** (“klumps”) applied in different contexts (gaps, clear cuts, under cover, …)
- Enrichment planting next to **natural regeneration**
- QD forestry (Qualification-Dimensionnement) to speed up and **maximize reproduction** (pollen and seeds)

© Maxime Lambinet (SRFB)

3 main planting schemes

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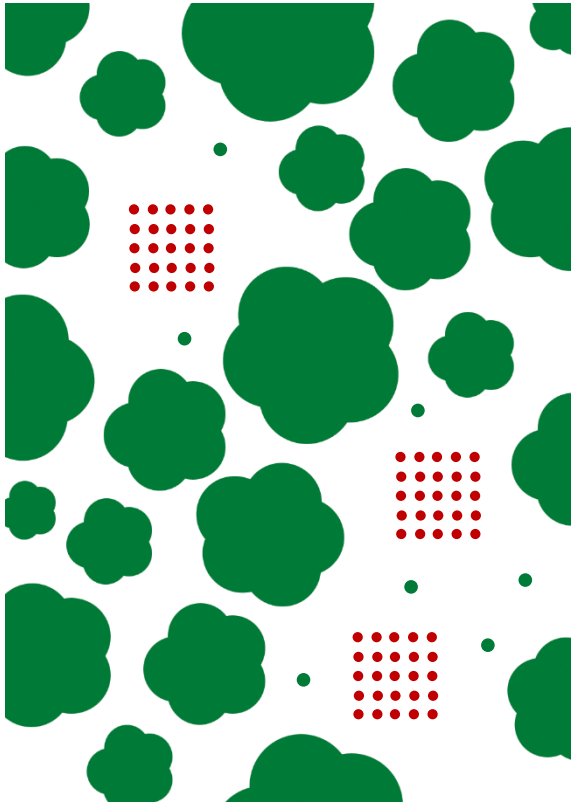
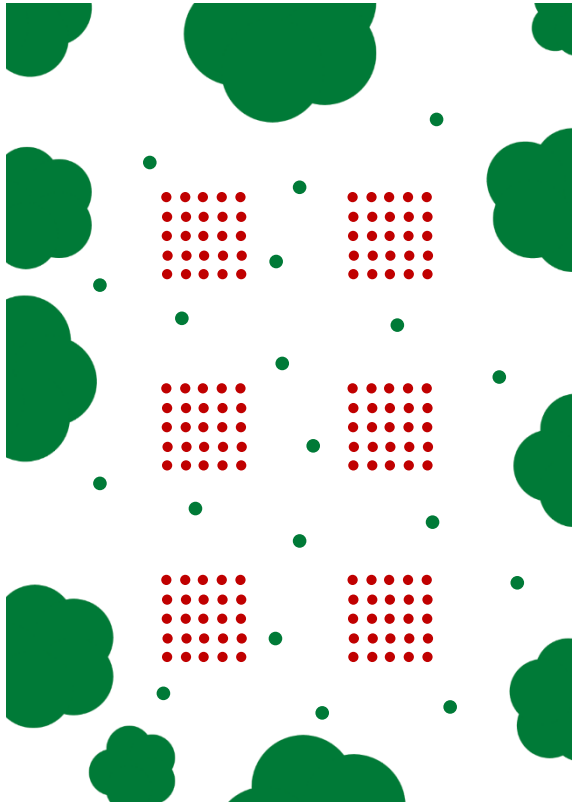
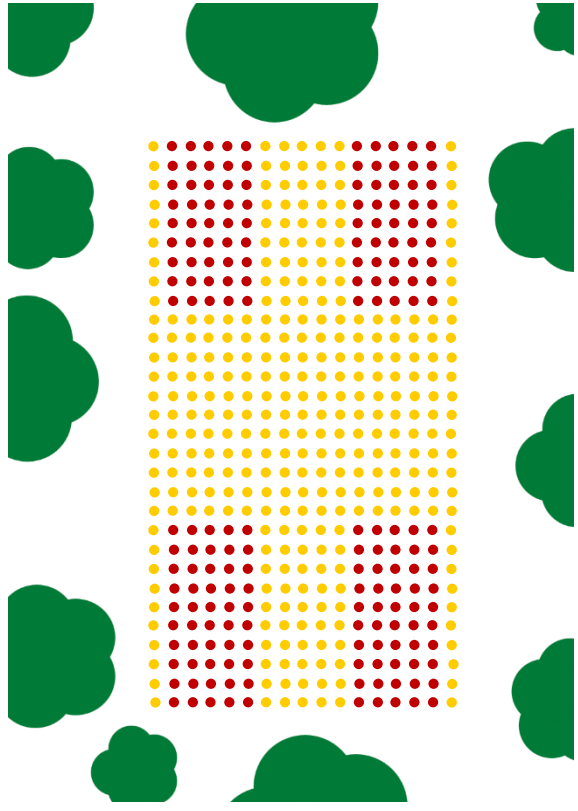
1. Cell planting in openings



2. Cell planting in clearcut



3. Blocks in full-area planting



- Assisted migration tree
- Other planted tree
- Tree from natural regeneration

More info on:
migforest.nweurope.eu

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Thank you!

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