

THE LIFE GREEN HEART PROJECT

Revegetation of île du Ramier in Toulouse

2019-2025

Budget: €3.8 M



toulouse
métropole



Landeshauptstadt
Düsseldorf



UNIVERSITÉ
CAEN
NORMANDIE



In 2019, Toulouse Métropole was selected by the European Commission in the framework of the LIFE programme for the environment and climate action.

The winning project, based on experimentation and scientific partnerships, focused on “revegetating the northern part of île du Ramier”.

More generally speaking, the LIFE Green Heart (Generate RESiliENT actions against the HEat islAnd effect on uRban Territories) project helped create a green lung on île du Ramier, as part of the Grand Parc Garonne project.

The programme aims to develop and enhance the Garonne and its river banks over a 32-km stretch in the Greater Toulouse area.



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ÎLE DU RAMIER...



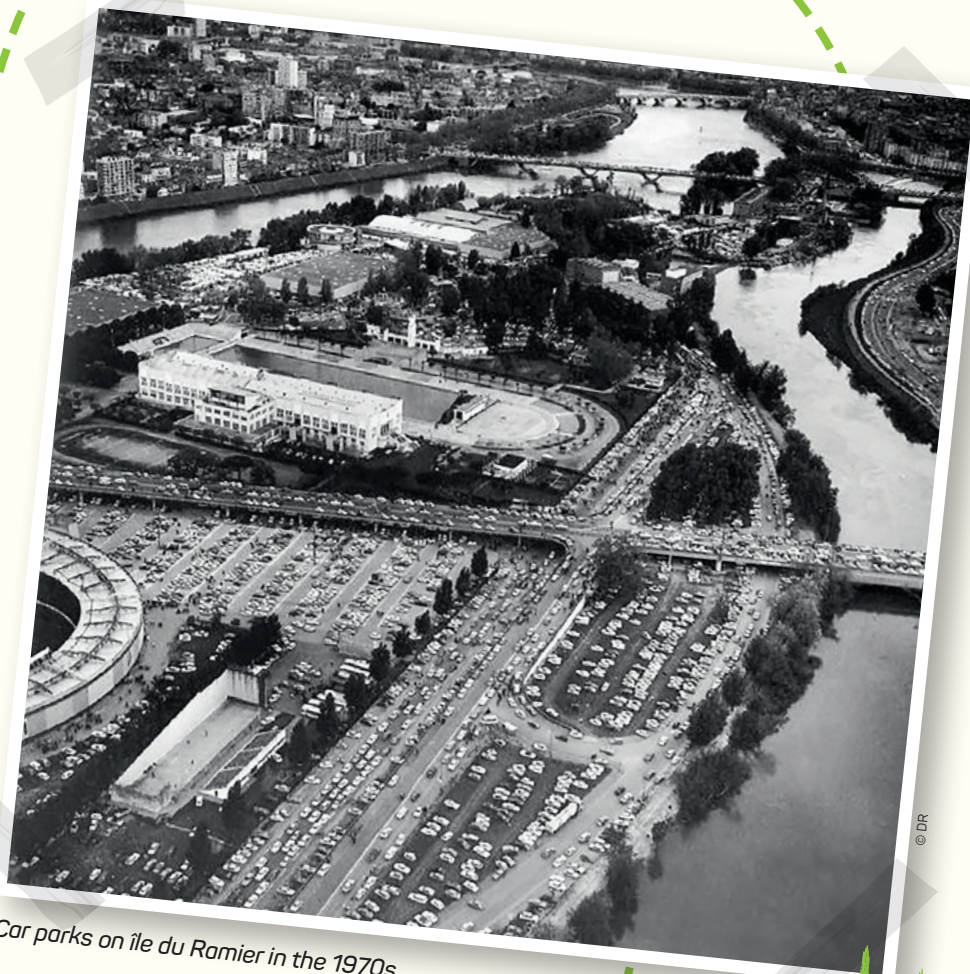
© Maire de Toulouse - Archives municipales 9f5757



Toulouse's "central park" in the early 19th century

...FROM PAST TO PRESENT

These areas were urbanised from the 1950s onwards, when the stadium, exhibition centre and several car parks were built.



Car parks on île du Ramier in the 1970s.

PRE-PROJECT ANALYSIS

Despite boasting an outstanding natural and architectural heritage (Nakache swimming pool, powder mills, etc.), and numerous prestigious sports facilities, île du Ramier was failing to exploit its full potential.

Over-use and separation of the different areas had left little room for nature to thrive over the past few decades.

Too many car parks and roads made it vulnerable to extreme heat, exacerbating the urban heat island effect.

The relocation of the exhibition centre, undertaken in 2020, paved the way for a new approach to the island.



© P. Nin

The former exhibition centre and its car parks in 2018.

PROJECT SCOPE



© DR

Aerial view in 2017





OBJECTIVES

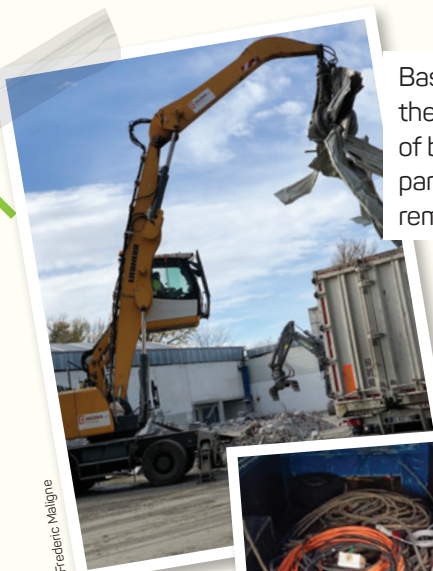
- Lower the temperature on the island and cool down the surrounding neighbourhoods
- Green up the area, regenerate the soil and create 10 ha of green spaces
- Revegetate the land by planting more than 2000 trees
- Reinforce and extend vegetation on the river banks (riparian zone)
- Restore, develop and protect biodiversity
- Limit air and noise pollution
- Develop tools for better long-term management of climate change in the Greater Toulouse area

Create an urban cool island and bring the average temperature on the island down by 2 to 3°C during heatwaves, and cool down the surrounding neighbourhoods.

© Agence TER

*How île du Ramier
will look in 2030,
after the revegetation
project*

DECONSTRUCTING THE EXHIBITION CENTRE



© Frédéric Maigne

Based on a circular economy approach, the deconstruction of some 40,000 square metres of buildings, and the greening up of roads and car parks, led to the reuse of nearly 98% of materials removed in other projects in the urban area.



© DR

The electrical installations from buildings were collected by the charity organisation “Électriciens du Monde” to equip a drop-in centre for the homeless in Toulouse.



© DR



© DR

All the asphalt was crushed and ground down on site, then recycled as a sub-base for other building projects within a 20-km radius.

DOING THE GROUNDWORK FOR REVEGETATION

The existing soil was made up of backfill and had been waterproofed over 70 years ago: it was very compact and impoverished, unsuitable for growing healthy plants.

Revitalising the soil to make sure the future cover plants could thrive for years to come was a key step, involving an innovative technique for studying and monitoring the biological quality of the soil – rolled out as part of the LIFE project.



© Hekadonia

*Core samples
taken from the
existing soil*



© DR

*Soil before the project, comprising highly
degraded anthropogenic backfill materials.*



TEMPORARY MEADOW MADE UP OF LEGUMES AND GRASS (GREEN FERTILISER)



© DR



© DR



© P.Nin

REVITALISATION OF IMPOVERISHED SOIL

A group of scientists, including researchers specialised in soil microbiology, helped Toulouse Métropole design and apply the scientific protocol.

April 2021



12 experimental agricultural plots were set up, to help identify innovative techniques for revitalising the existing soil.

To revitalise the soil, various techniques such as decompacting then adding a soil enhancer, and sowing with green fertiliser, were applied. Deep soil composed of silt was reused as an intermediate layer, and micro-organisms and mycorrhizas were transferred to the soil via inoculation.

October 2021



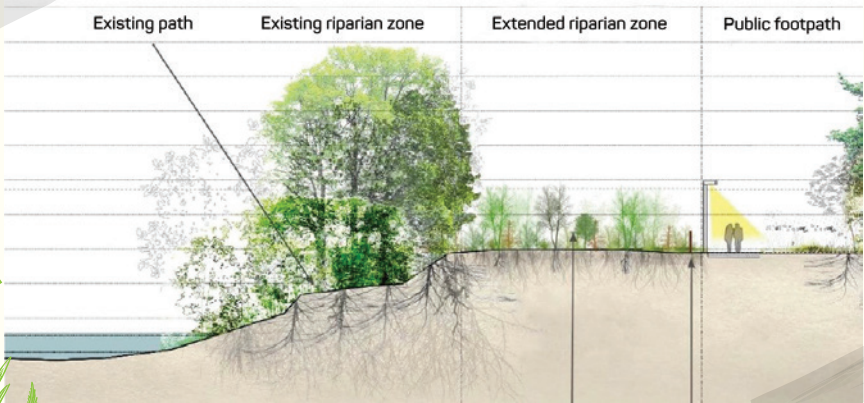
In successive phases, the asphalt was gradually replaced by surface vegetation, which stimulated the return of an underground ecosystem.



EXTENSION OF THE RIPARIAN ZONE

The riparian zone provides natural protection by stabilising the river banks through its network of roots. It limits the intensity of flooding and regulates the water resource in periods of drought. It acts as a filter - water is naturally purified – and it is a fantastic ecological corridor for a host of animal species (both land and aquatic animals).

Extending vegetation on the river banks by over 50%, up to 10 metres wherever possible



REGREENING THE PARK



March 2025

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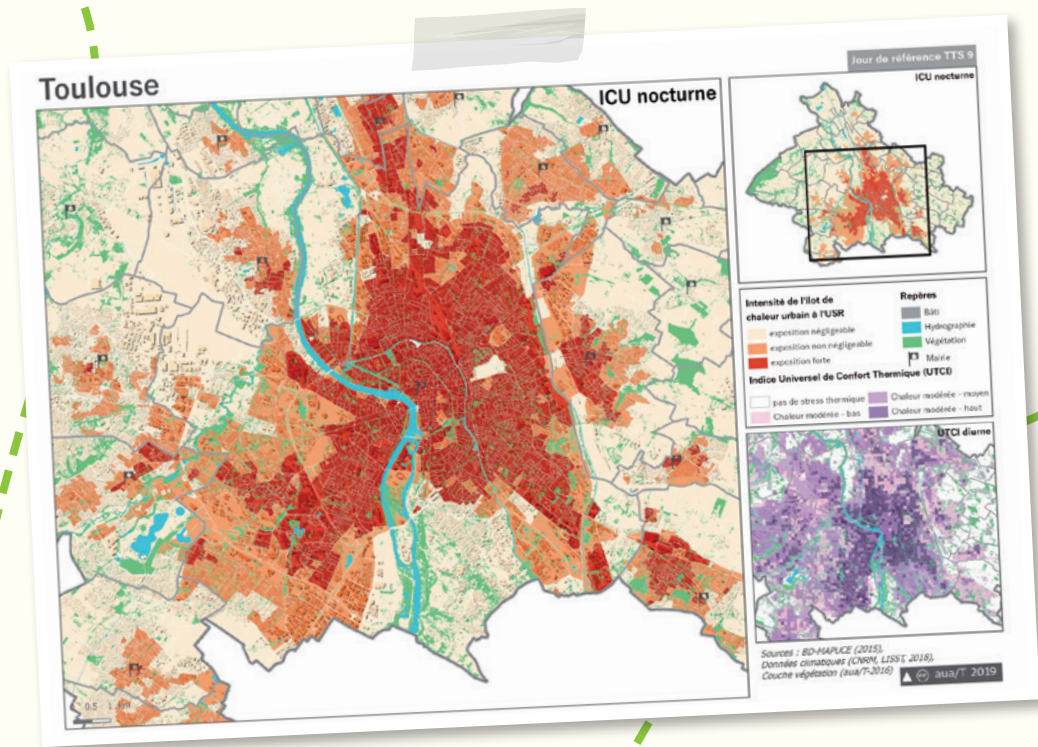


August 2025

© DR

A PROJECT TO COMBAT EXTREME HEAT IN THE URBAN AREA

Global warming is pumping up temperatures in cities and making life uncomfortable for their inhabitants. Toulouse is no exception when it comes to urban heat islands: temperatures can be up to 6°C higher than in nearby rural areas. That temperature difference also poses a threat to biodiversity.



Nocturnal heat island

Given the seemingly unstoppable rise in temperatures, adapting our cities is a priority.

A PROJECT BASED ON SCIENTIFIC PARTNERSHIPS



MÉTÉO-FRANCE AND THE FRENCH
WEATHER RESEARCH CENTRE (CNRM)

What Météo-France hopes to achieve

Assess the impact of the new landscaped park on local weather conditions using two complementary methods:

- > real-time measurements with on-site weather stations
- > weather forecasting models

14 weather monitoring stations were set up in 2020 on the island and in the surrounding neighbourhoods.



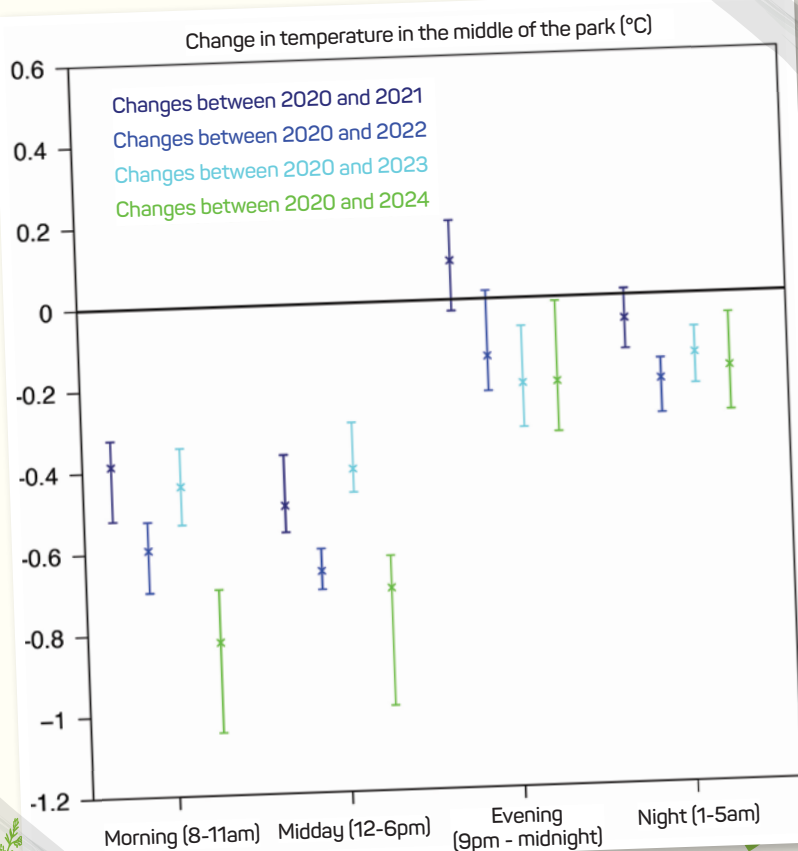
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Real-time measurements

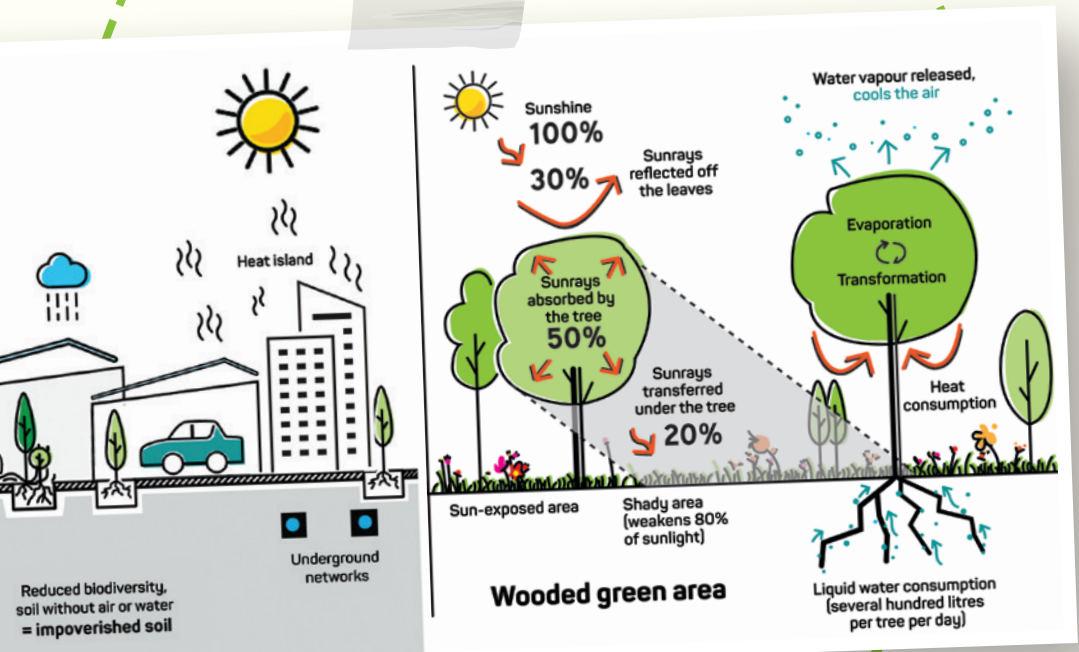
Even before trees were planted, the figures for 2024 show a temperature drop of 0.8°C during the day and 0.2°C at night in fair-weather summer conditions. We will continue to monitor temperatures until 2030 in order to quantify the impact of the growth of trees planted in spring 2025.

The atmospheric model

It also allows us to estimate the drop in apparent temperature, taking into account the actual temperature, humidity, windchill and sunlight. The apparent daytime temperature during heatwaves could be up to 3°C lower in the middle of the new park, thanks to shade provided by the trees.



Rethinking urban development with a focus on reducing urban heat islands and creating cool areas is one way of combatting the harmful effects of global warming.



Revegetation is a highly effective way of reducing the effect of urban heat islands.

Urban parks, tree-lined streets and reflective materials are all tangible ways of reducing urban heat islands.

The Museum is a partner of the project and has been monitoring plants and birds since 2019. Bird monitoring involves making 3 inventories in the spring in 10 different locations, to observe and listen to birds. Over the last 5 years, around sixty different species have been recorded.



Black-crowned night heron
Nycticorax nycticorax

© P. Delouis



Black kite
Milvus migrans

© G. Roques



Common kingfisher
Alcedo atthis

© P. Delouis



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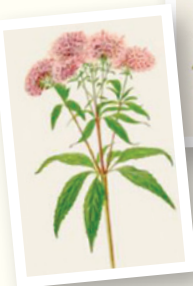
Ring-necked parakeet
Psittacula krameri

Some trends are already emerging...

For example, observation of ring-necked parakeet populations showed they had extended their distribution: in 2019, they were only found in two locations on the site, but they can now be seen across the entire site.

The Museum botanist had made some recommendations about plant varieties suited to the local ecosystem.

An inventory of all the flowers that grow on the site is also drawn up every year.



Hemp-agrimony
Eupatorium cannabinum



European white elm
Ulmus laevis



Silver poplar
Populus alba

© Récolte

In 2023, 280 wild plant species were recorded on the site, i.e. 20% of all species found in the city of Toulouse.

The Museum also runs educational activities for the general public, some aimed at children, to teach them about biodiversity, its importance, and how it works on île du Ramier in the heart of the Grand Parc Garonne. It has also set up self-guided tours to find out more about biodiversity on the island.



© DR

UNIVERSITY OF CAEN NORMANDY (UNICAEN)

The university carried out a study into how île du Ramier was used. Between 2020 and 2025, surveys were conducted with help from students studying town planning at the University of Toulouse II, and later from students at the University of Caen (2023, 2025).



© Alice Rouyer

Student geographers conduct surveys in the field



© Alice Rouyer

Those surveys revealed that local residents were not inclined to visit île du Ramier, except to attend matches at the stadium. They described it as hard-to-reach, unattractive, and even inhospitable or dangerous in some parts.

Users questioned on site said the place was like a maze and hard to navigate, for pedestrians, cyclists and car drivers alike.

Some busy roads ran through it, providing access to major infrastructure, but with no thought for the surrounding environment.

According to the surveys, the most popular activities were walking and sport, facilitated by access to a number of sports clubs and free sports pitches.

A diverse mix of people could be found on the island, which was home to a student hall of residence, a drop-in centre for people in need, a casino and theatre, as well as a waste recycling centre.

Women and children were less likely to go there than men.

Visitors tended to be concentrated in 3 main areas:

- The north of the island, the zone formed by the lock and the *Théâtre de Verdure* outdoor venue, which extends to the sports facilities and restaurants around the *Emulation Nautique* sports complex.
- The centre of the island, the Stadium – the best known and most popular attraction, mainly thanks to its football and rugby matches. The nearby free sports facilities also attracted regular visitors. In the summer, families also tended to gather here, taking advantage of the Alfred Nakache swimming pool.
- In the south of the island, the large, shady footpath and the Parc de la Poudrerie were popular with families and athletes, who enjoyed canoeing and kayaking along its whitewater course.



© P.Nin



© P.Nin



© Toulouse Métropole



© P.Nin

Anita-Conti footbridge in the Empalot neighbourhood

Aside from those areas, other parts of the island were hard-to-reach, little-known or even avoided. There is no doubt that modifying the island's access roads, with a better, more visible layout including two footbridges joining the island to its adjacent neighbourhoods (which do not have the same sociological profile), will open up the area to a much broader population and foster diversity.

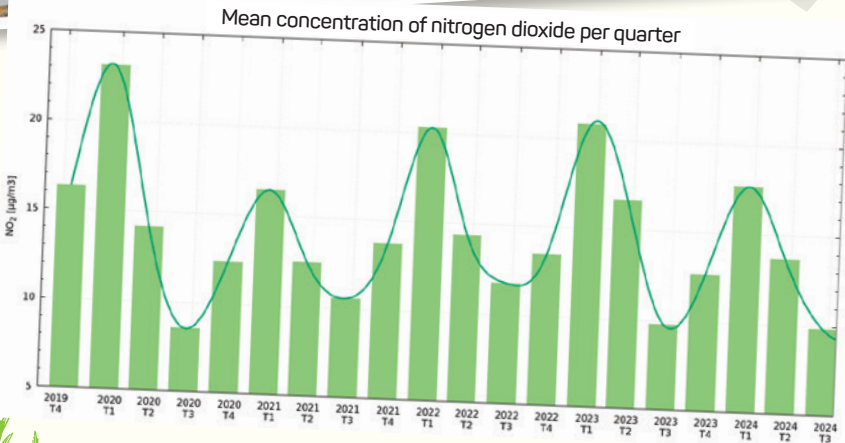
WALT^R

The startup WaltR was tasked with assessing changes in air quality throughout the project.

A prototype was used to help WaltR design a high-resolution model with an accuracy of 10 metres for use on the island. Six measuring stations were set up on the island, along with a multispectral camera installed high up in Toulouse city centre.

Four main pollutants were measured:

- > Nitrogen dioxide
- > Ozone
- > PM10 particulate matter
- > PM2.5 particulate matter



Between 2019 and 2024, the mean concentration of nitrogen dioxide in the park fell by at least 22%, and should continue to fall.

CITY OF DÜSSELDORF

Dialogue and overlapping perspectives on the effects of revegetation

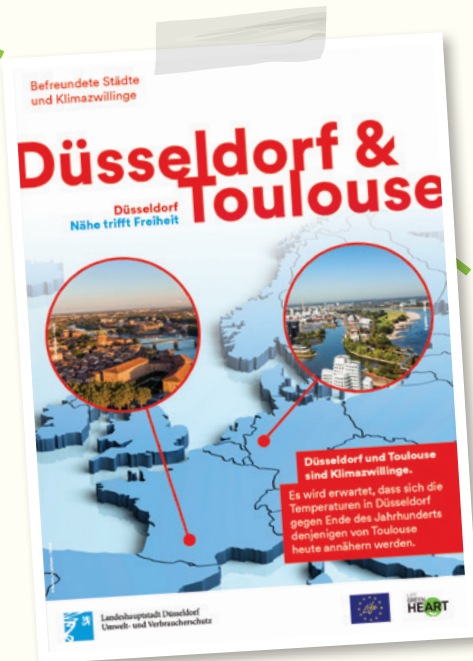


Landeshauptstadt
Düsseldorf

The two cities work together under the long-standing cooperation agreement they signed in 2003 and have renewed ever since.

With the LIFE Green Heart project, the climate twins Toulouse and Düsseldorf have worked closely on the question of how to adapt to climate change.

They have organised photo competitions and workshops to promote the project among the general public, and strengthen dialogue between the two cities.

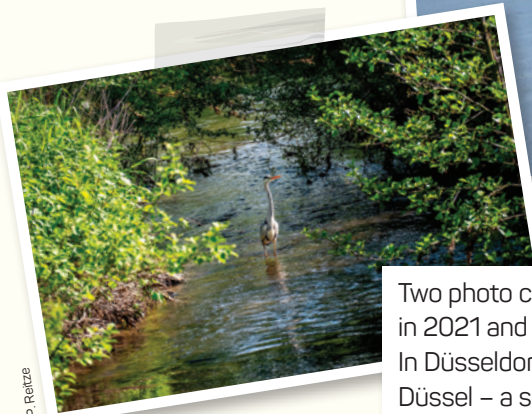


Climate twins means that by 2100, Düsseldorf will have the same climate as Toulouse today.

Photo competitions in 2021 and 2025



© DR



© P. Retze

Two photo competitions were held in both cities in 2021 and 2025.

In Düsseldorf, the theme was revegetation of Südliche Düssel – a small tributary that gave the city its name. In Toulouse, the theme was transforming île du Ramier, the main focus of the LIFE Green Heart project.



© D. Lhéuillier



© H. Burg

The exhibitions were a great way of highlighting climate-positive actions undertaken in Toulouse and Düsseldorf.

Workshops

In 2022, a first workshop was held in Toulouse along with conferences, tours and discussions about various themes related to climate change adaptation.

In 2023, the second workshop in Düsseldorf addressed the same topics in more detail.

Several concrete actions were undertaken as a result of those events:

- a phenological garden in Toulouse (like the one in Düsseldorf);
- a prevention campaign concerning the tiger mosquito in Düsseldorf (already rolled out in Toulouse);
- new projects such as "Plan °C" and "Jumeaux climatiques en action" (or, climate twins in action)



© F. maigne



© LHD

Benefits of cooperation

The climate twins initiative sparked new ideas that inspired both cities to promote climate change adaptation. It is now a key theme of the Franco-German partnership.

