The Nature Conservancy

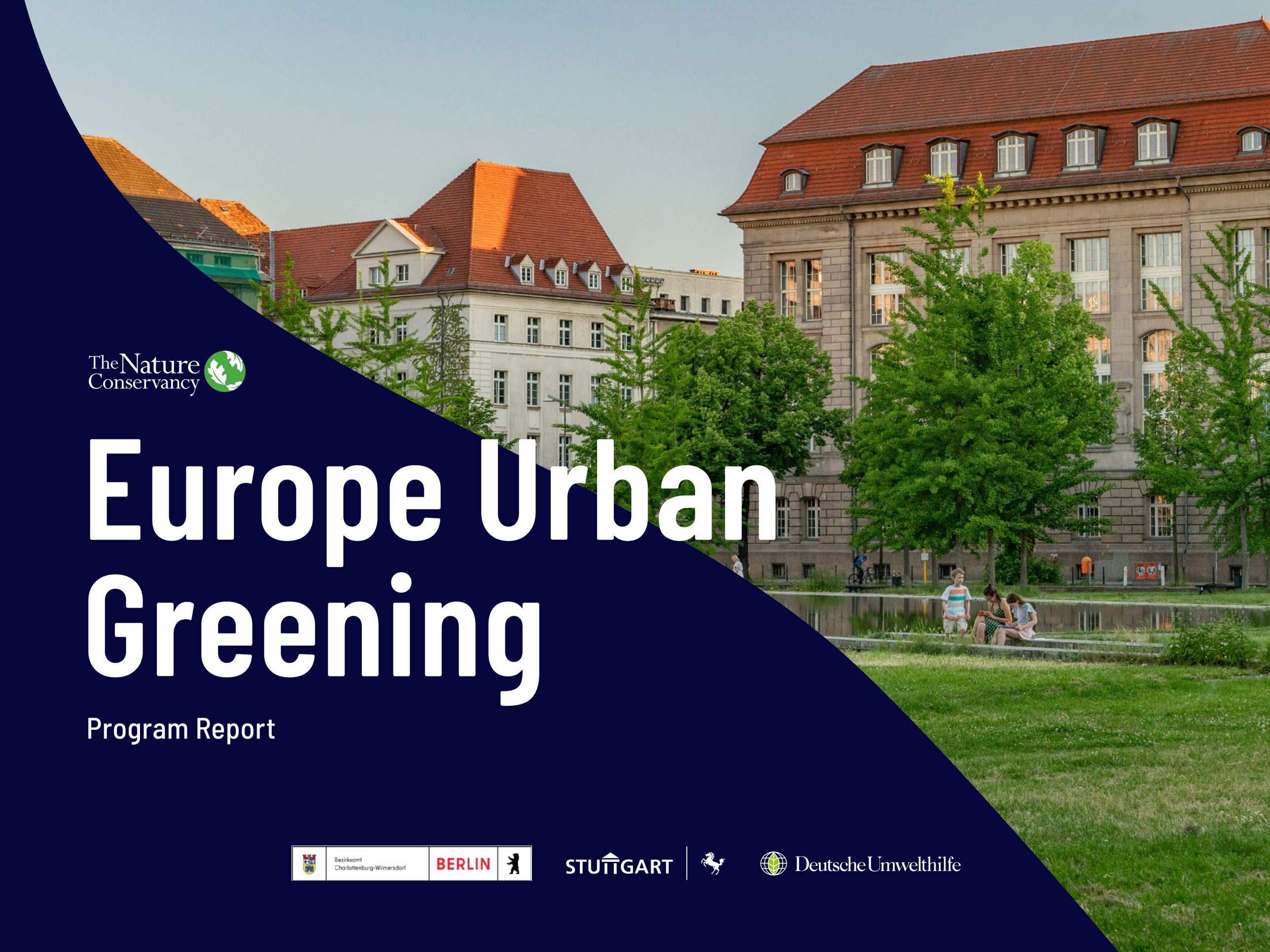
Europe Urban Greening

Program Report

Bezirksamt Charlottenburg-Wilmersdorf BERLIN

STUTTGART

Deutsche Umwelthilfe



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Acknowledgements

Authors: Jamie Chan, Sebastian Horstkotte, Anne Hiller, Craig Holland, Maria Knaus, Rob McDonald, Sophie Mok

Editor: Noel Rozny

Designer: Lisa Sills

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The Nature Conservancy (TNC) is fortunate to have the support of visionary people and organizations, whose generosity allows us to pursue our mission. We are grateful to the Europe Urban Greening Program's primary financial donor, Amazon.com, for supporting our work to help cities accelerate nature-based solutions for climate adaptation.

The Nature Conservancy in Europe gGmbH

www.nature.org/europe

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"The collaboration with The Nature Conservancy was an important catalyst for advancing urban greening as an effective strategy for climate adaptation and biodiversity in Berlin Charlottenburg-Wilmersdorf. Through this partnership, we were not only able to promote innovative, nature-based solutions in our district, but also overcome structural barriers and initiate lasting change. By integrating scientific expertise directly into our administration, we were able to identify and implement effective, goal-oriented measures. What began as a single collaborative project has developed into a model that will shape our district in the long term—particularly by permanently integrating climate adaptation into our administrative work. The collaboration with The Nature Conservancy has successfully demonstrated that innovative partnerships between local governments and non-profit organizations can open new avenues that extend far beyond individual projects and contribute to the sustainable development of our district."

Mr. Oliver Schruoffeneger,
District Councillor of Berlin Charlottenburg-Wilmersdorf

Image Credit: © Jen Guyton

Image Credit: © University of Stuttgart

"The collaboration in the Europe Urban Greening Program is an important building block for a bright future for Stuttgart. On the one hand, we have gained a strong partner in The Nature Conservancy and built-up new expertise and capacities in the field of nature-based solutions. On the other hand, we were able to launch a special thematic funding line for innovative solutions for climate change adaptation in the Stuttgart Climate Innovation Fund in order to specifically promote actors and projects in this area. This stronger focus on one of the key challenges facing our city is important because Stuttgart's location in a basin makes it particularly vulnerable to heat stress and heavy rainfall. By pooling our resources, we have been able to pilot a completely new cooperation and financing model for the city administration and at the same time give important impulses at the interface between climate protection, adaptation, and biodiversity.
The partnership has also played a key role in establishing an interdisciplinary innovation community that is developing local solutions to global challenges here in Stuttgart - even beyond the scope of the program."

Martin Körner
Director of the Climate Protection, Mobility and Housing Policy Unit of the City of Stuttgart

“To effectively tackle the climate crisis, cities need to be reimagined. With support from The Nature Conservancy, we were able to focus on two key challenges: increasing heat stress due to land sealing in densely populated cities and the untapped potential of nature-based school grounds. In the project Heat in the Dense City, we created a nationwide “heat check” for cities with 50,000 or more residents based on environmental and population data. The result: millions of people live in areas where it is particularly hot and green spaces are scarce. Political action is long overdue, as heat waves will become even more intense in the coming years. With Woods R Us, we have raised awareness among planners and school communities about climate-resilient schoolyards – and have also implemented concrete greening measures by planting three Tiny Forests. The Europe Urban Greening Program from The Nature Conservancy shows how livable, green cities can become a reality and that urban greenery should not be a luxury. With our work as part of the program, we are providing clear impetus for socially just and climate-adapted urban development.”

Barbara Metz,
Managing Director, Environmental Action Germany (DUH)

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Executive Summary

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OVERVIEW

Biodiversity Loss & Climate Change in Cities

Cities around the world are facing twin crises. On the one hand, they're trying to address the climate crisis, both by reducing their own emissions and by adapting to the impacts of climate change that are already here: more intense and frequent heatwaves, increased risk from floods, more severe droughts and increased human health risks. On the other hand, cities want to do their part in dealing with the biodiversity crisis, helping protect important habitats within their territory, restoring natural areas where possible and reducing their negative biodiversity impact on the broader world. More and more, cities are turning to nature as a solution to these challenges. Scientific research around the world shows that nature-based solutions (NBS) can be an effective and affordable way to make cities more resilient as part of their overall climate adaptation planning effort, while also increasing the diversity of flora and fauna.

There have been many reports about the potential for nature to help cities, and dozens of good case studies. And yet, as those of us who work in this field will grudgingly admit, more examples of cities fully achieving the potential of NBS are needed, going from demonstration projects to large scale implementation. Some real barriers exist to using urban NBS to help solve the climate and biodiversity crises. This report focuses on two of them. First, even if cities have the desire and funding sources to create NBS, many municipal agencies may not have the capacity or skills to plan for and implement these programs. This is understandable— these agencies often have many other responsibilities that they must fulfill, and the existing skill set within the agency may not include much knowledge of how to operationalize NBS. Second, it is difficult to incentivize actors from different sectors (government, non-profit, private sector, community groups) to collaborate to come up with innovative ways to use NBS. Their implementation has been seen primarily as a function of governments, particularly municipal governments, but cross-sector collaboration is arguably needed to achieve the full potential of NBS.

To help advance the agenda of urban NBS and find ways to overcome these barriers, The Nature Conservancy (TNC) created the Europe Urban Greening (EUG) program in 2020. The program has focused to date on Germany, with on-the-ground work touching down in two cities: Berlin and Stuttgart. Engagement in each city was intentionally designed to have differing modes of engagement and experiments in urban NBS implementation designed to overcome these barriers. Over five years, we have been developing solutions and learning lessons about what works, and what doesn't work, when trying to increase the use of NBS in an urban area. This report aims to present those lessons learned in a way that should be relevant to anyone who works in urban areas and wants to help finance, plan for, implement or maintain NBS for climate resilience and biodiversity.

BARRIERS

Urban NBS offer enormous potential to help cities address the climate and biodiversity crises. Before they can be implemented at scale, we must address capacity and collaboration

1. Even though many cities are expressing interest in NBS and may even have the budget necessary to implement them, the municipal agencies tasked with execution may not have the capacity or skills to plan and maintain these programs.

2. The implementation of NBS is often tasked to municipal governments, yet it takes a village for them to succeed. Government agencies, as well as non-pro it organizations, local businesses, community groups and citizens must collaborate to not only generate ideas for how to best apply NBS, but to see them brought to fruition. This multi-sectoral collaboration is essential, and yet has also been a hurdle in the adoption of NBS.

STRATEGY

Development of EUG to address these barriers

In 2020, TNC launched the EUG program to provide municipal leaders and communities with the support they need to address barriers to NBS implementation. Working on the ground in Germany, TNC and local partners co-created two different modes of engagement:

Partnering with Municipalities

By embedding capacity from TNC directly within a municipal government, as we did in the cities of Stuttgart and Berlin, we hoped to overcome the capacity gap that many municipal natural resources management agencies face to accelerate the planning and implementation of NBS.

Partnering with NGOs

We also explored new funding models for NBS that would bring together multiple actors from different sectors, including NGOs, and sought to broaden our impact by strengthening partnerships with local nonprofit organizations that work actively on the ground.

Image Credit: © Gabriel Parsyak

OUTCOMES

Key Learnings & Takeaways

NBS are increasingly recognized as effective strategies for building more resilient cities. From embedding skilled staff within local governments, to linking science with practice, to navigating the complex political landscape, the path to successful urban greening projects is multifaceted. The lessons shared here aim to provide valuable insights for those looking to advance the integration of NBS into urban practice, ensuring that they are effectively planned, implemented and

OUTCOMES

Integrate Staff

Embedding competent staff in local government agencies can go a long way in speeding up project implementation. This approach reduces bureaucratic barriers, builds credibility and will better integrate NBS into the urban planning cycle.

Highlight Measurable Impacts

Create well-defined and quantifiable outcomes through Key Performance Indicators that demonstrate the success of NBS in an urban area. Establish a monitoring system to track and measure these metrics from the start of the project. These data are essential not only to demonstrate the success of the projects, but also to support scale-up and replication efforts.

Address the Challenges of Maintenance and Funding

As most NBS projects face long-term maintenance and funding challenges, these obstacles must be proactively addressed to make the projects more sustainable. Long-term success can only be ensured through the availability of adequate resources and a plan for their ongoing maintenance.

Integrate Science and Practice

The most successful urban greening involves the interconnected coordination of scientific research and practice. This allows decisions to be evidence-based, helps achieve real-world impacts, and contributes to the larger knowledge base on urban sustainability.

Foster Collaborative Solutions

Because urban areas are dense and space is at a premium, conflicts of interest often arise over how space should be used, constructed, managed and maintained. Progress requires creative ideas fostered in collaboration with many different actors.

Maximize Flexibility and Networking

The inherent flexibility of NGOs opens up various other avenues of funding and resource use. Active participation in networking events can develop collaboration and the exchange of information, skills and experience, further increasing the scope and effectiveness of an urban greening project.

Involve the Community

Early and continuous involvement of the community throughout the project cycle is critical to gaining buy-in. This will help them develop ownership of these projects, ensuring the success of green infrastructure projects and their future maintenance.

Manage Political Processes

Understanding and adapting to political processes is critical to the success of urban greening projects. Relationships with elected officials, coupled with the ability to adapt quickly and smoothly after a change in administration, can help NBS initiatives achieve more secure and stable long-term support.

Balance Innovation with Practicality

Innovation is necessary, but it must be complemented by pragmatism. Finding solutions that are both transformative and viable requires close attention to stakeholder interests and the constraints of the urban environment.

Encourage Interdisciplinary Collaboration

Urban greening, much like climate adaptation, is essentially an interdisciplinary challenge. Collaboration across sectors and disciplines will always highlight holistic and effective responses to suit the diverse needs of urban ecosystems and communities.

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The EUG Program

Image Credit: © Calvin Leander

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PROJECT OVERVIEW

In 2020, Amazon.com committed funding from its Right Now Climate Fund toward the EUG program. This generous support, paired with additional funding from other organizations, enabled us to pilot unique and diverse approaches in Germany, and to create a theory of change that set out goals we wanted to achieve over a five-year period:

1. Utilize NBS as a cost-effective way to increase local and global climate resilience, promote biodiversity and improve human well-being.
2. Accelerate the integration of NBS and green infrastructure into municipal budgetary and capital planning cycles.
3. Engage communities in a science-based, people-centered approach to collaboratively develop greening solutions and increase climate literacy.
4. Influence structural and policy change at the local level to secure sustained funding for planning and implementing NBS.
5. Scale up innovative processes and demonstration projects throughout Germany and Europe.
6. Share best practices and lessons learned locally and globally.

Next, we embarked on the search for cities to partner with and set criteria to assess and identify those locations. In general, those municipalities exhibited a critical need for TNC's scientific and strategic expertise and had robust climate policies, a strong governance structure and extensive data foundation. It was important that these partners were willing to go beyond "business as usual" to help shape innovative processes and results-oriented approaches. Further, it was critical that there was strong political support and a commitment to climate change actions. Equally crucial was the cities' commitment to investing in green infrastructure through a co-funding agreement in our partnerships. This approach allowed TNC to act as a catalyst to change policy and/or unlock funding to ensure a sustained municipal commitment to urban greening.

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Developing a Collaboration Framework

We established a distinctive collaboration framework that underscores the essential role of partnerships among diverse stakeholders in promoting and implementing NBS in urban settings. This section provides an exploration of the key partnerships developed within EUG.

Partnering with Municipalities

A lack of personnel has been one of the biggest barriers when it comes to initiating new NBS projects and partnerships. To address this issue, we launched a new collaboration model that embedded TNC staff within German city administrations, allowing us to provide financial support, while also building capacity and knowledge. In 2020, we forged a strategic partnership with the Department of Nature Conservation in Berlin Charlottenburg-Wilmersdorf, specifically partnering with the Nature Conservation Department. To formalize this collaboration, we created a Memorandum of Understanding (MoU) that outlined fundamental agreements, mutual interests and expectations, laying a solid foundation for our joint efforts. In 2022, we established a similar partnership with Stuttgart, engaging with the city's Climate Protection Unit, which is part of the Mayor's office.

These positions were designed to provide conceptual and coordinating leadership for project initiatives and to fill critical staffing gaps within the administration necessary for planning and executing NBS. In Berlin, the Department of Nature Conservation played a crucial role as a project partner, co-designing and influencing all major decision-making processes. Together, we identified and defined key priorities, objectives and methods, ensuring that our outcomes were well-integrated into urban practices at both administrative and policy levels. This collaborative approach facilitates the implementation, institutionalization and sustainability of our efforts.

In Stuttgart, we partnered with the Stuttgart municipal government to create a dedicated funding line for urban greening projects as part of the city's €13 million Climate Innovation Fund. This created a financial incentive that would be open to any sector, including for-profit and start-up companies, helping to overcome the incentive gap barrier and accelerate the creation of NBS for the City.

This integration of our team into both city administrations allowed for direct insight into the operational processes of both partners, ensuring effective communication and streamlined workflows. The cross-functional roles have proven vital for fostering an efficient and collaborative partnership between the administrative bodies and international nature conservation organizations.

Partnering with NGOs

One of the great advantages of partnering with another NGO is that they are often able to recruit faster, have less internal bureaucracy, can expedite the completion of contracts and have a great degree of flexibility with their funding. For example, even with a very modest budget, an NGO can help a municipality to overcome the problem of pre-planning, thus freeing up municipal funds for project implementation.

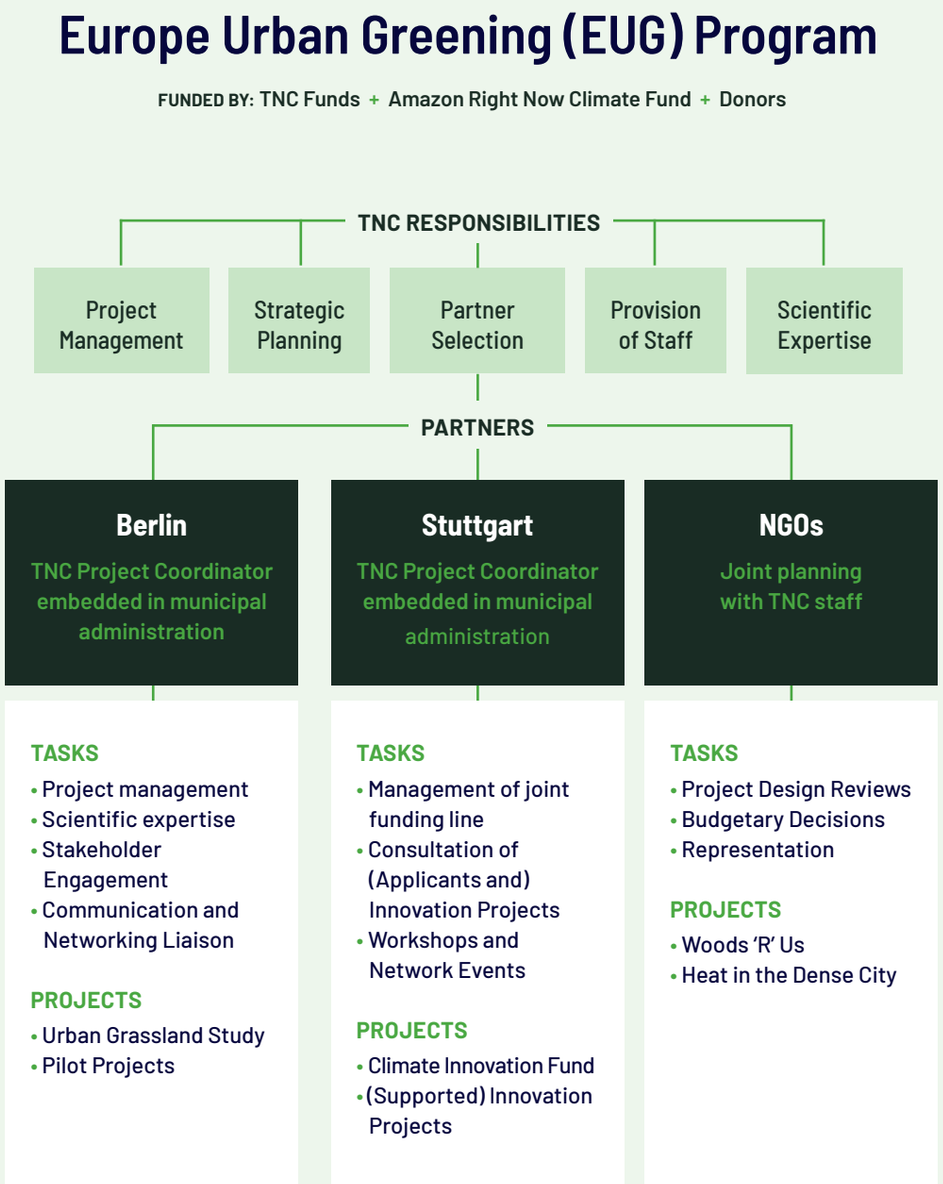
To that end, we partnered with Environmental Action Germany (Deutsche Umwelthilfe) to address the issue of urban heat, which disproportionately impacts sensitive age groups such as children, the elderly and socioeconomically disadvantaged segments of the population. Together, we worked to transform schoolyards into dynamic, biodiverse hotspots that also promoted the well-being of students and stimulated urban development in the most sustainable way, as well as conducted 25 workshops and two national conferences to disseminate best practices to communities and schools. We also sponsored a study on urban heat that highlighted the thermal burden on vulnerable and socially disadvantaged populations and where planning authorities need to be more sensitive with regard to infill development and the provision of green space.

This collaboration demonstrates the integration of environmental education into urban design so that children grow up with an appreciation for nature and a basic understanding of sustainable practices. By transforming schoolyards, Deutsche Umwelthilfe and EUG are creating healthy and inspiring spaces that promote environmental awareness and community involvement.

Scaling Impact through Collaboration

These primary partnerships were further enhanced by a series of project-specific collaborations with additional key stakeholder groups. These included local environmental organizations, various departments within the city government, the Berlin Administration and local initiatives and think tanks, as well as academic institutions and professionals from various sectors. The richness of these collaborations has been fundamental to the success of our program, as the collective insights, perspectives, and expertise of these key actors have contributed to an integrated and robust approach to program development.

Through these collaborative models, EUG exemplifies how effective partnerships can drive meaningful progress in urban nature conservation and climate adaptation efforts.



PARTNERING WITH MUNICIPALITIES

Berlin

TNC formed a strategic partnership with the Department of Nature Conservation in Berlin's Charlottenburg-Wilmersdorf District in 2020. Significant funding from TNC enabled the joint creation of a new staff position to provide scientific support, project planning and implementation throughout the partnership. Together, we embarked on a transformative journey to enhance urban green spaces, increase biodiversity and combat climate change through two complementary approaches.

RESULTS *As of May 2025*

58k+
Residents potentially benefiting from our projects

6,799 m²
Of ecologically restored land

3k+
People engaged through media outreach

1,080
Citizens actively involved in greening projects

128
Stakeholder roundtables engaging decision-makers

Approach #1: Urban Grassland Study

This comprehensive assessment focused on identifying opportunities for developing green spaces throughout the district.

Greenprint

Central to this effort was the Greenprint—an innovative spatial plan designed to visualize the potential and benefits of green infrastructure. Utilizing rigorous scientific methods, particularly GIS-based spatial analysis, we identified potential locations for greening interventions, including green roofs and road medians.

Learn more about Greenprint

Grassland Plant Guide

In addition, we compiled a comprehensive list of climate-resilient and ecologically valuable plant species suitable for various urban habitats. This resource serves as a guide for stakeholders across the community, from city planners to local residents, providing actionable recommendations for enhancing urban greenery.

Learn more about the Urban Grassland Plant Guide

Grassland Evaluation Tool

We developed a tool to measure the ecological value of urban grasslands based on 50 indicator species validated by field data from 70 vegetation surveys across the district. This tool is designed to help the Green Space Department efficiently assess the condition of their grassland.

Learn more about the Grassland Evaluation Tool

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Approach #2:
Pilot Projects and Early Implementation

Building on the findings of our Urban Grassland Study, our second approach focused on implementing pilot projects. These initiatives applied NBS to enhance urban ecosystem services while developing scalable models for broader application. Working closely with local authorities, we combine applied research with practical implementation to ensure that scientific knowledge was translated into effective solutions on the ground. A key objective of the pilot projects was to demonstrate the effectiveness and feasibility of different greening approaches in real-world settings. By integrating research, stakeholder collaboration and practical implementation, they lay the groundwork for solutions that can be replicated across different urban landscapes.

GREEN GOALS

Rewilding the Wilmersdorf Stadium

We explored the potential of sports facilities as urban open spaces, focusing on NBS for greening sites. The Wilmersdorf Stadium pilot project tested greening strategies to identify grassland plant species resilient to Berlin's increasingly dry and hot summers. Herd grazing was also explored as a solution for managing invasive species on uneven terrain.

Read more about the Wilmersdorf Stadium pilot project

RESILIENT BY DESIGN

Climate Solutions for Mierendorff-Insel

In partnership with the Department of Nature Conservation, we commissioned a climate adaptation plan for the southern section of Mierendorff Island—a neighborhood with island-like geography facing notable climate change vulnerabilities while also undergoing significant redevelopment. Together with stakeholders from the city administration and the local community, we developed and discussed 66 targeted measures centered around key issues.

Read the full report on Mierendorff-Insel

Image Credit: © Jen Guyton

REVIVING THE STREETS

Greening Hardenbergstraße

As part of our Greenprint, we conducted a thorough analysis of spatial greening potentials within the streetscape of Charlottenburg-Wilmersdorf. This assessment identified approximately 40 road medians identified as high-potential areas for greening efforts. In collaboration with the district's Green Space Department, which oversees the maintenance of these areas, we selected a pilot project to activate this potential: the road median along Hardenbergstraße, a prominent street in Berlin's city center that was transformed into a biodiverse grassland through seeding.


Image Credit: © Maria Knaus

Read more about the Hardenbergstraße project

PLAYING GREEN

Sustainability in Sports Facilities

Sports facilities offer immense potential for nature conservation and climate resilience. Their green spaces provide habitats for native species and opportunities for urban residents to connect with nature. By designing these areas as ecological refuges, we can effectively support biodiversity and promote climate adaptation. We launched the initiative to develop the first sustainable plan for Wilmersdorf Stadium, focusing on biodiversity and heat reduction, to serve as a model for the district's more than 20 sports facilities in Berlin and beyond.


Image Credit: © Jen Guyton

Read more about Wilmersdorf Stadium

ROOTED IN RESILIENCE

Urban Tree Valuation at Mierendorff-Insel

Urban trees face increasing threats from densification and climate change. Despite their critical role in enhancing urban resilience, their value is often underestimated. To address this, we launched a project to better value these trees, focusing on their ecosystem services. A case study on Mierendorff Island assessed the value of street trees threatened by the planned extension of a tram line through the neighborhood. The findings, presented at a public event, will guide future planning and help protect these invaluable urban assets.

Image Credit: © Sebastian Klemm

Read more about this multifaceted project

CULTIVATING RESILIENCE

Berlin-CW's Wild Perennial Production

At Berlin's only public nursery in Charlottenburg-Wilmersdorf, we promoted the production of wild perennials in peat-free soil. In collaboration with the Green Space Department and the Department of Nature Conservation, we supported the production and planting of more than 70 grassland species, enhancing species richness across the district. We worked closely with the nursery staff to align plant recommendations, shaping the nursery's focus on species that support local biodiversity and climate resilience.

Image Credit: © Carsten Knobloch

Read more about the wild perennial production

Critical Elements for Successful Program Implementation

Getting Buy-in Through Dialogue

To ensure broad support and effective implementation, we engaged multiple district offices on the findings of the Urban Grassland Study. These discussions were further enriched through a series of workshops co-organized with the Senate Administration, facilitating expert dialogue on green space development. This collaborative effort led to a novel model for enhancing green spaces in the district and initiated the development of citywide guidelines for species selection in Berlin.

Pilot Projects and Immediate Implementation

We initiated a series of pilot projects to enable the early implementation of greening measures in the district. These projects not only demonstrate the feasibility of the Urban Grassland Study, but also set the stage for immediate action to create a greener Berlin. These pilot projects were designed to be scalable and can serve as easily replicable models in similar contexts.

Community Engagement and Citizen Participation

In Berlin, we facilitated active participation in different pilot projects. In total, we co-organized over 50 workshops and events to maximize the reach of our activities and facilitate extensive engagement with the public. These events were designed in various formats, including neighborhood festivals, roundtable discussions and conferences. Some allowed the public to be involved and consulted throughout the project, such as our work in Mierendorff-Insel. The feedback and insights gathered from these interactions have been invaluable in refining our initiatives and ensuring they meet the community's needs and expectations. This extensive public engagement has also significantly enhanced the visibility and impact of our work in Berlin. Through our collaborative approach and a variety of stakeholder events, we successfully engaged with over 50 stakeholder groups, including local groups, city officials, non-profits, sports clubs and schools.

Environmental Education

Environmental education fosters a deeper understanding and appreciation of nature among community members, and our work has consistently prioritized this aspect. The pilot project "Grazing in Wilmersdorf Stadium" is a standout example, offering a unique wildlife experience in an urban setting. Visitors connect with nature while learning about ecological landscape management and the cultural-historical significance of grazing.
For various projects, we installed interpretive signage to inform local communities about the background and significance of our projects for both people and nature. We also co-organized public events to showcase our work and offered environmental education activities for all ages. These educational components help foster a long-term commitment to environmental stewardship within the community.

Policy Adoption

Together with the Department of Nature Conservation, we developed a draft resolution that encapsulated the core elements of the Urban Grassland Report for adoption by the District Council. This resolution aims to provide a solid policy foundation for the implementation of urban greening initiatives and is strategic to the future development of green spaces in the district. To ensure broad support and successful adoption, we coordinated with various departments, offices and local politicians to develop a comprehensive draft resolution that incorporates all relevant perspectives. This collaborative effort was crucial for securing buy-in and aligning the resolution with the diverse interests and priorities of all municipal stakeholders involved.

Setting Priorities

Based on the potential areas for urban greening identified in our Greenprint, we worked with the Green Space Department to select priority areas for green space development in the district. This selection process was thorough and strategic, ensuring that the chosen areas would have the maximum ecological impact. The Green Space Department not only acknowledged the high potential and importance of greening these areas but also confirmed its commitment to prioritizing greening activities in these areas in the future. This commitment is a significant step forward in ensuring that these high-potential areas will receive the attention and resources needed to transform them into vibrant green spaces. This strategic alignment will also guide future urban planning efforts in the district's green spaces, ensuring that greening initiatives are systematically integrated into the design and development of these areas.

PARTNERING WITH MUNICIPALITIES

Stuttgart

To address technical, societal, economic or governance-related barriers to NBS in municipal processes, we partnered with the city of Stuttgart to test a new funding model and support innovative projects for nature-based climate adaptation that brought together multiple stakeholders from different sectors.

RESULTS *As of May 2025*

2k+
Citizens actively engaged*

50+
Greening work in > 50 Neighbourhoods

115t
Sequestered carbon*

3,000 m²
Newly greened area*

25
Supported Organisations

€3.5 M
Euros invested in NBS

175
Workshops and events conducted*

10
Influenced urban planning and sustainability strategies

*in progress

Image Credit: © Reinventing Society & Wire Collective

Image Credit: © Calvin Leander

A New Financial Approach: Innovation Projects for Urban Greening

The Climate Innovation Fund

To tackle both climate mitigation and adaptation, the city of Stuttgart created a local Climate Innovation Fund to support different organizations and stakeholders to develop, pilot and mainstream new climate solutions. With a budget of 10 million euros allocated for 2021-2023, it is Europe's largest municipal fund for climate action. In 2022, TNC joined forces with Stuttgart to create an additional and dedicated funding line for innovative NBS projects, reserving 3 million euros for projects that bring nature back to the city. This dedicated funding stream became known as the Ivy Line.

During this pilot phase, the city supported more than 60 innovative climate projects from various organizations, 19 of which focused on urban greening, and established a local community of practice. Since 2024, the Climate Innovation Fund has received an additional 2 million euros per year from the city's regular budget. A Climate Innovation Council with local experts from different areas selects the best project proposals for funding, based on criteria such as degree of innovation, climate impact, scalability and activation potential. Furthermore, a result-based funding scheme was established in which each project defines a set goal and up to three intermediate milestones that are linked to the payment of the grant. This mechanism helped maximize the impact of the fund, promote goal-oriented project management and allow for lean administrative processes. This funding model is an example of how municipalities, NGOs, businesses and other stakeholders can jointly work toward a greener and more climate-friendly city.

The following is an overview of the 19 urban greening projects developed through the Ivy Line.

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Ecological Innovations

Nature has always inspired people – and learning from nature is to tap into knowledge created over billions of years of natural evolution. A better understanding of natural ecosystems and processes can thus help us develop better solutions for climate and biodiversity. For example, the **Wild Climate Wall** is an innovative green façade system that not only lowers the surrounding temperature, but also incorporates over 70 plant species and provides different habitat structures for local insects, birds and bats. The appearance of the wall changes with the seasons and adapted maintenance processes take natural cycles and breeding times into account. **Tiny Forests** were also piloted, using densely planted plots that harness natural competition for light to promote rapid growth in small urban spaces. These compact forests integrate seamlessly into the cityscape while capturing up to 40 times more carbon than conventional forests—a method pioneered by Japanese botanist Akira Miyawaki.

Economic Innovations

Working with nature also provides opportunities for new business ideas. Through the Ivy Line, several start-ups and SMEs were able to further develop new solutions and business models for climate adaptation and urban nature, as well as activate new target groups and stakeholders. For example, **Wild Company**'s monitoring and reporting dashboard allows companies to customize wilderness modules and track the progress of ecological upgrades on their campuses and include them in their Corporate Sustainability Reporting Directive and sustainability reporting. Another project examined the impact of urban greening on **retail and gastronomy**, and the local "**Groundbreakers Innovation Alliance**" launched a European start-up competition in the frame of the International Building Exhibition to find new nature-based solutions for the building sector.

Social Innovations

Urban greening always has a social aspect. Several Ivy Line projects specifically looked at these human-nature interactions and tested new ways to bring nature closer to citizens and marginalized groups. Community gardens play an important role. **KeinGarten** transformed 5000 m2 of fallow private agricultural land into a jointly utilized nature experience space— especially for people who do not have access to private green spaces. In another neighborhood, an existing community garden was further developed to promote the concept of **Edible Districts** by developing Stuttgart's first "edible" street, offering free permaculture workshops and an open seed bank for residents. Furthermore, three green pop-up bathing rooms were developed in 2025 to make the **local mineral springs** more accessible and provide space and drinking water for residents to cool off on hot days.

Process Innovations

Some Ivy Line projects focused on influencing urban planning processes to provide better frameworks for implementing urban greening. For example, TreesAI worked with different municipal departments to develop digital planning tools to analyze the benefits of urban trees under different climate and maintenance scenarios. Other Ivy Line projects worked directly with city agencies to establish new municipal approval processes for depaving and greening to create an Endless Garden along sidewalks. The car2tree initiative further developed an existing parklet procedure to convert parking spaces from declining car counts into mini street parklets with plants and wooden seating for the neighborhood. Other projects established interdisciplinary planning roundtables to involve different actors in the planning for NBS on university campuses, or developed parametric planning tools for citizens to develop customized trellises for climbers to green their own balconies and terraces.

Art & Design Innovations

Other innovations developed through the Ivy Line added an artistic element to urban greening or were inspired by new design principles. For instance, 7000seeds aspired to develop a social-ecological artwork in Stuttgart by supporting bottom-up initiatives in realizing greening projects similar to Joseph Beuys' 7000 Oaks. Several projects developed new urban furniture to bring more nature to areas where space is very limited and depaving impossible. Ecotrii, for example, designed a shaded seating structure that uses resilient climbers to mimic urban tree canopies, while Regenmodule focused the design of their benches on the ability to capture and store rainwater, which could then be used to water nearby street trees. As new infrastructure provider, Velodepo, further developed their bicycle garages to feature locally adapted biodiversity green roofs, thus combining climate mitigation and adaptation effects.

Innovation in Resilience & Maintenance

Stuttgart and cities across the world are extreme habitats for many plants, due to limited space, compacted soils or various sources of pollution. With a changing climate and increasingly extreme weather, new support systems and maintenance options are needed to ensure that urban nature can thrive. With water becoming increasingly scarce, ReWaterCity's Ivy Line Project set up living labs to test decentralized wastewater treatment to provide high-quality irrigation water and locally harvested nutrients while conserving local freshwater sources. Another Ivy Line Project used the redevelopment of a street to install an innovative tree trench according to the Stockholm model. Locally produced biochar from municipal green waste is used in the filling substrate, which optimizes the water and nutrient retention capacity for the 64 newly planted street trees, while also being a local carbon sink. The project is embedded in Stuttgart's bioeconomy strategy.

Taken together, these Ivy Line projects showed the variety of ideas and solutions needed to roll out and mainstream NBS in cities. *More information on the Stuttgart Climate Innovation Fund and the individual urban greening innovation projects and results can be found here*.

Image Credits (top to bottom): © Gabriel Parsyak, © Ecotrii, © Jen Guyton

Critical Elements for Successful Program Implementation

Cooperation Over "Surveillance"

The results-based financing scheme enabled the Climate Innovation Fund Team to spend more time guiding and individually supporting the projects along the agreed goals and milestones, instead of monitoring long project reports and detailed financial audits. This helped create space for an ongoing and constructive dialogue on project goals and ways to maximize impact.

Establishing a Local Community of Practice

Through regular networking meetings, hackathons, webinars and consultation hours, the Climate Innovation Fund Team brought together and supported local organizations in further developing their ideas and connecting with each other. As the connection between climate action and urban greening is not always obvious, it was helpful to create and communicate a dedicated funding line and directly address and invite actors of interest. In addition to forming connections, the community of practice held informal events to celebrate successes. This engagement helped create local momentum.

Feeding Innovative Practices into Existing Municipal Strategies

NBS are highly complex and require good coordination and relationships among different departments. We took care to keep key actors in the municipality informed and we participated in cross-departmental working groups to make sure the Climate Innovation Fund, as well as the individual projects, were placed in existing municipal strategies. In Stuttgart, for example, there were opportunities within the city's **climate adaptation concept**, as well as the **climate roadmap 2035**.

Digitalization as Enabler

Over the course of time, more and more aspects of the Climate Innovation Fund, such as the application, evaluation and project monitoring processes, have been digitalized. This enabled lean management processes, higher transparency and better time efficiency.

Continuous Improvement

As the work involved a new funding and collaboration model, an independent evaluation was conducted toward the end of the pilot phase. Applicants and grantees, as well as the jury and organization team, were interviewed and their feedback used to refine and improve the funding approach, as well as to identify where additional support is needed.

Spreading the Word

Different channels were used to promote the Climate Innovation Fund, as well as the Ivy Line projects and their results. These included websites, social media, municipal newsletters and blogs, podcasts, engagement with journalists, press, and magazines, in-person events and paid online campaigns. All funded projects received supporting material to consider their target audience from inception and develop their own communications strategy.

Going Beyond

The active search for innovative NBS, as well as the results-based financing, are both rather unique in the municipal context. Therefore, TNC and the city of Stuttgart made sure to engage in national and international exchange to share lessons learned and discuss these approaches with other municipalities and actors. For instance, there has been a presence at the World Green Infrastructure Conference 2023, the Urban Futures Conference 2023 and The Nature of Cities Festival 2024. Furthermore, Stuttgart, alongside other cities such as Zurich and Vienna, created a dedicated "European Cities Network for Innovative Climate Project Funding."

PARTNERING WITH

NGOs

We supported the work of Environmental Action Germany in tackling the issues of urban heat, lack of biodiversity and the need for more NBS in the most densely populated urban areas to reduce impact on the most affected populations.

RESULTS *As of May 2025*

3
Planted 3 Tiny Forests on school grounds

1,500
Students and 200 teachers impacted

2
National conferences[1] with approx. 1000 attendees[2]

8
Online workshops for decision makers, practitioners, etc. with a total of about 2500 participants

[1] 2024 and 2025
[2] Attendance in person and online

Image Credit: © Jen Guyton

WOODS 'R' US

Schoolyards as Natural Spaces and Climate Oases

Most German schoolyards have been designed to be very low-maintenance, meaning a concrete-heavy space with little shade and natural elements. As global temperatures rise, these areas are becoming unusable, even dangerous to human health, during the hottest months, thus limiting their usefulness to both students and communities. We supported Deutsche Umwelthilfe's work to transform schoolyards into biodiverse, climate adaptive spaces that offer shade, cool the air and provide ecological benefits. The project consisted of three parts: 1. a national congress on the theme of nature-based outdoor spaces in childcare facilities and primary schools; 2. a program of events for specialists offering practical advice on greening schoolyards; and 3. the planting of three "tiny forests" on three public schools in Berlin, Bremerhaven and Dieburg near Frankfurt.

Read more about Woods 'R' Us

HEAT IN THE DENSE CITY STUDY

Understanding Heat's Impact On People

As cities grow and densify to provide more people with necessary housing and infrastructure, increased development exacerbates the impacts of climate change. One of the biggest challenges is the urban heat island effect, which disproportionately affects children, the elderly and the poor. To better understand the thermal burden on vulnerable and socially disadvantaged populations, and where planning authorities need be more sensitive with regard to densification and the provision of green space, we supported a study by Deutsche Umwelthilfe. Innovative instruments, such as remote sensing, were used to help municipalities identify areas most impacted by urban heat, without using traditional, time-consuming and cost-intensive climate analyses. Satellite data and existing aerial images provided a wide range of data at the neighborhood level and micro-scale information, including the health of individual trees, was also gathered. The study also linked socioeconomic data from the 2022 census to climatic observations.

Read more about Heat in the Dense City

Image Credits (top to bottom): © Lennart Wenning, © Gabriel Parsyak

Critical Elements for Successful Program Implementation

Harness the Power of Existing Relationships

Established connections help foster trust, streamline collaboration and accelerate program momentum. Leveraging established connections with partners already embedded in the local community allowed us to tap into pre-existing relationships, making engagement more effective. These partnerships not only enhance credibility but also ensure initiatives align with local needs, leading to more impactful and sustainable outcomes.

Mission Alignment

A unified vision among partners strengthens collaboration, ensuring decisions and actions align with shared goals. Clear communication and coordination enhance impact by fostering consistency and mutual understanding. When all stakeholders operate with a common purpose, their efforts become more strategic, cohesive and effective.

Complementary Expertise and Well-defined Roles

Effectiveness improves when each organization's strengths and expertise shape well-defined roles. A structured approach fosters seamless collaboration, ensuring efforts complement rather than duplicate. By clarifying responsibilities, teams can work efficiently and achieve greater results.

Image Credit: © Jen Guyton

Next Steps

Image Credit: © Jen Guyton

Ensuring Project Sustainability

It was important to us that all of our NBS projects were easy to continue, replicate and upscale. To that end, we took the following steps to ensure a seamless transition for municipalities and NGO partners as project terms came to a

Planning for Uptake

We began our work by designing projects that would be applicable to other districts and cities. Our goal was to create comprehensive interventions that also provide a versatile framework that can be tailored to the unique needs of different neighborhoods.

> ***Example:*** *In Stuttgart, many of the supported innovation projects use parts of their funds to develop a replication strategy and/or a scaling guide to ensure good documentation of the lessons learned and support the uptake and mainstreaming of new solutions.*

Institutionalizing Our Work

Institutionalizing our work not only ensures the sustainability of our current projects but also sets a precedent for future initiatives. By embedding staff roles within the district, we are fostering a long-term commitment to climate adaptation and NBS, ensuring that these efforts are systematically integrated into the planning and operational processes. This strategic move underscores the importance of our collaborative approach and the tangible benefits it brings to urban resilience and sustainability.

> ***Example:*** *In Berlin, our collaboration contributed to the creation of two new permanent staff positions, demonstrating our success in securing funding for positions dedicated to NBS and underscoring the district's prioritization and commitment to these issues.*

Ensuring Durability

Wherever we could, we ensured the data we produced and collected were embedded within municipal IT systems. This data will support ongoing and future projects and enables municipalities to make informed decisions based on comprehensive, up-to-date information. It also facilitates continuity, ensuring that the lessons learned from our work are preserved and can be built upon, rather than lost or duplicated. In addition, easy access to this data promotes transparency and collaboration with both internal and external stakeholders. It allows for more efficient data sharing and analysis, which can enhance the effectiveness of urban greening initiatives and other sustainability projects. Ultimately, this integration helps to institutionalize our efforts, embedding them into the district's operations and supporting long-term urban resilience planning.

> ***Example:*** *In collaboration with the district's public nursery and Department of Nature Conservation, we consolidated an annual "standard plant production" plan that ensures a steady supply of native and ecologically beneficial plants for urban greening projects in the district. Standardizing plant production can better support biodiversity, enhance the resilience of urban ecosystems and provide high-quality plants that meet the specific needs of our greening initiatives.*

Aligning with Existing Strategies

We took care to engage with different relevant stakeholders—especially within different municipal departments— and to pro-actively participate in cross-departmental exchange. This way, different perspectives and priorities could be respected in the pilot projects and new ideas could be fed into different existing or emerging strategies.

> ***Example****: In Stuttgart, we planned enough capacity to be present in interdisciplinary working groups (such as climate adaptation, innovation and international affairs). This approach enabled us to better promote and support our projects, as well as place innovative ideas and lessons learned in municipal strategies.*

Image Credit: © Jen Guyton

Building a Resilient & Green Tomorrow

We have learned a lot over the past five years that can inform other cities considering an urban greeing approach. Many municipalities have a capacity gap, with few staff possessing the time and skills to implement NBS. For those public agencies that want to accelerate the uptake of these solutions, we found that embedding staff in those agencies with skills in planning for and implementing NBS, as we did in both Berlin and Stuttgart, is an effective way to overcome this capacity gap. Of course, municipalities face other institutional barriers to scaling up NBS, including difficulties collaborating across multiple agencies with different missions and cultures. In these instances, we suggest that municipal sustainability plans that bring together multiple agencies around a common plan and vision are one important coordination mechanism that can be effective in many cities.

Many municipal governments struggle to identify potential NBS, and to mobilize actors from multiple institutions. We found that challenge grants, such as the Ivy Line in Stuttgart, can be one important and effective way to incentivize actors from multiple sectors to plan for and implement NBS. However, it does take time to cultivate good proposals and build collaborative, innovative partnerships, so municipalities need to view challenge grants as an ongoing commitment and dialogue with other stakeholders. Rather than thinking of challenge grants as a quick way to identify shovel-ready NBS projects, think of the challenge grant process as the start of a conversation between the municipality and the grantees about how to design and implement NBS projects.

The Nature Conservancy believes that nature has a key role to play in addressing the twin crises of climate change and biodiversity collapse. We are heartened that many cities in recent years have commited to taking a NBS approach to make progress in addressing these dual crises. Now comes the hard work of making those commitments tangible and real—scaling up the implementation of NBS to achieve nature's full potential. This will require increasing capacity for NBS planning and implementation within municipal governments through innovative partnerships with NGOs like TNC, as well as academic and research institutions. It will also require more funding for NBS implementation, in ways that increase participation and buy-in across all sectors, especially the private sector. We believe that challenge grants, focused on implementing NBS for adaptation, should be created at municipal, national and European Union levels, at a scale commensurate with the twin crises of climate change and biodiversity loss. Only by bringing all sectors of society together to support municipal governments can we find innovative, scalable solutions for NBS.

Project Deep Dives

Urban Grassland Study

Greenprint

Urban Grassland Plant Guide

Grassland Evaluation Tool

Berlin-CW's Wild Perennial Production

Climate Solutions for Mierendorff-Insel

Grazing for Better Grassland

Playing Green: Sustainability in Sports Facilities

Reviving the Streets: Greening Hardenbergstraße

Rooted in Resilience: Urban Tree Valuation at Mierendorff-Insel

Woods 'R' Us: Schoolyards as Natural Spaces and Climate Oases

Heat in the Dense City Study: Understanding Heat's Impact on People

Image Credit: © Jen Guyton

Urban Grassland Study

The Urban Grassland Study was developed as a strategic framework to identify opportunities and provide practical recommendations for urban grassland development in Charlottenburg-Wilmersdorf.

The first phase involved a comprehensive assessment of existing grassland areas and the identification of potential sites for future grassland development (a spatial analysis framework called Greenprint). This spatial analysis focused not only on creating new urban grasslands but also on enhancing and restoring existing green spaces to maximize their ecological value.

In the second phase, targeted strategies and tools were developed to support the creation, management and long-term maintenance of urban grasslands. A key element was the development of comprehensive plant lists that provide guidance on ecologically valuable and drought-tolerant species for various habitat types.

The Urban Grassland Study was designed with a strong emphasis on practicality and adaptability. By working closely with the Department of Nature Conservation and other municipal departments, the concept aligns with existing planning processes and can be replicated in other districts to promote city-wide ecological improvements.

Take a look at the **Urban Grassland Study here**.

Image Credit: © Jen Guyton

Greenprint

To identify and strategically develop urban green spaces in Berlin's Charlottenburg-Wilmersdorf, we created a Greenprint— a spatial analysis framework that maps potential areas for green infrastructure expansion. Our approach focuses on two primary typologies: rooftops and street medians, both of which hold significant potential for urban greening. Using Geographic Information System (GIS) technology, our analysis provides a data-driven foundation for targeted interventions, ensuring that urban greening efforts are both effective and scalable.

Unlocking Green Potential on Urban Rooftops

In Charlottenburg-Wilmersdorf, rooftops constitute more than 20% of the total built-up area, representing over 8 million square meters of mostly unused space. This vast spatial resource holds enormous potential for green infrastructure, providing ecological and social benefits such as urban cooling, biodiversity enhancement and stormwater retention.

Despite Berlin's public green roof subsidy program, only 5.4% of the city's rooftops are currently vegetated. This highlights a significant untapped opportunity. Using GIS-based modeling we developed the district-wide Green Roof Cadaster, which categorizes roofs based on their geometry (Fig. 1). Our findings indicate that 53% of rooftops in the district have a slope of 15° or less, a critical factor that makes them potentially suitable for green roof installation. Our analysis shows that these rooftops, if fully greened, could reduce stormwater runoff by up to 933 million liters annually, mitigate heat island effects, and save up to 2.8 million kilowatt-hours of building energy per year (Fig. 2).

Check out our Green Roof Cadaster for Berlin Charlottenburg-Wilmersdorf here.

Figure 1: Map of potential green roof area for one portion of the district, showing existing green roofs on a few large buildings, primarily shopping centers, as well as potential future green roof area, with areas in dark brown indicating high potential for green roof construction.

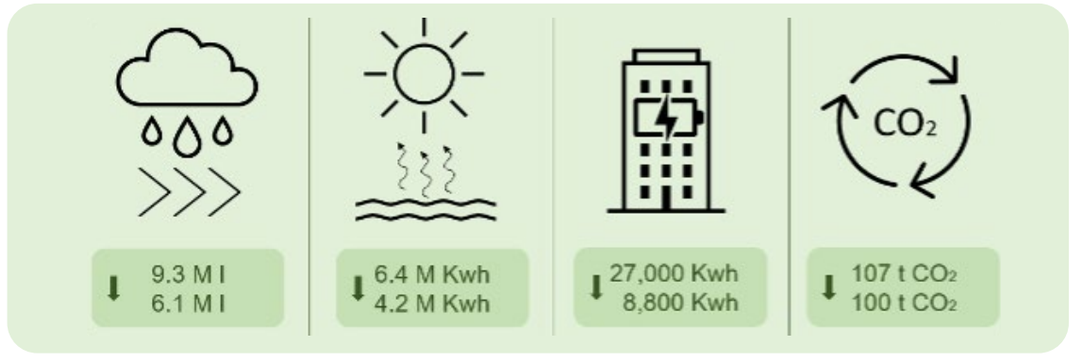


Figure 2: Potential annual contributions to climate mitigation and adaptation from greening 1% of all potential roof areas in Berlin Charlottenburg-Wilmersdorf, differentiated by intensive (upper values) and extensive green roofs (lower values). The four ecosystem services shown (from left to right) are: potential annual runoff reduction, potential annual evapotranspiration cooling capacity, potential annual energy savings (buildings) and potential annual CO2 sequestration.

Reclaiming Urban Streets for Green Infrastructure

Beyond rooftops, underutilized road spaces also present significant opportunities for green development. Many streets in the city feature wide, impervious medians that could be transformed into biodiverse meadows or tree-lined corridors, improving stormwater absorption and reducing urban heat stress. Our GIS analysis has identified 151,220 square meters of pervious street medians suitable for conversion into grasslands and pollinator-friendly habitats.

To prioritize high-impact interventions, we collaborated with the district's Green Space Department to select 37 priority medians for greening (Fig. 3). The first implementation site, the Hardenbergstraße street median, is already being transformed, setting a precedent for future urban greening efforts in the streetscape.

Integrating Science and Practice

Our Greenprint bridges research and implementation, ensuring that urban greening efforts are both scientifically grounded and practically feasible. By mapping spatial potential and integrating this data into district-level planning, we are laying the foundation for a cohesive urban greening strategy. This approach not only enhances local ecosystems but also strengthens the district's resilience to climate change, contributing to Berlin's broader sustainability goals.

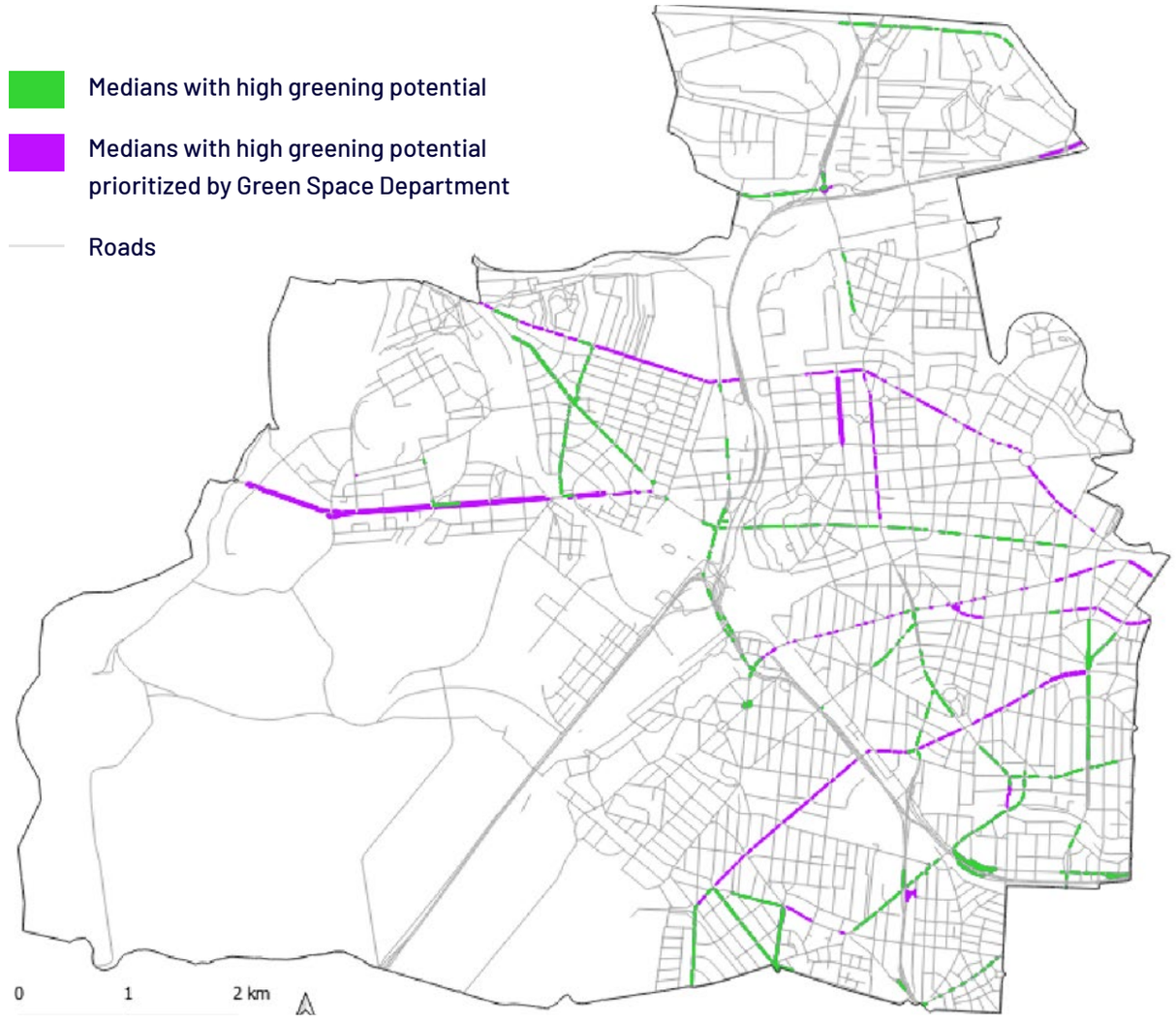


Figure 3: Map showing potential greening areas identified in the streetscape of Charlottenburg-Wilmersdorf. Medians with high potential as identified by GIS analysis are highlighted in purple while the selected priority medians coordinated with the Green Space Department are highlighted in green.

Urban Grassland Plant Guide

The successful establishment of species-rich urban grasslands strongly depends on selecting appropriate plant species. To support ecologically comprehensive grassland development, we created a plant guide that provides recommendations for species selection, balancing biodiversity, competitiveness and habitat suitability.

Our guide is based on the plant selection outlined in Berlin's guideline ***Pflanzen in Berlin – Verwendung gebietseigener Herkünfte***, published by the Berlin Senate Administration, which provides a standardized list of species suitable for various grassland types, including dry meadows, nutrient-poor lawns, and mesic meadows.

A key consideration in our species selection is avoiding highly competitive species that are already common in Berlin or those that spread extensively through rhizomes, such as *Achillea millefolium* (common yarrow). While some non-native species, like *Solidago canadensis* (Canadian goldenrod) and *Medicago sativa* (alfalfa), offer nectar resources for pollinators, their strong competitive ability can lead to dominance, reducing overall plant diversity. Instead, we recommend selecting less aggressive alternatives within the same family or genus, such as *Solidago virgaurea* (European goldenrod) or *Lotus corniculatus* (bird's-foot trefoil) instead of *Medicago sativa*.

To support informed decision-making, we compiled comprehensive lists of native and non-native species categorized by habitat type. In certain cases, carefully selected non-native species may be included to enhance species diversity and improve the climate resilience of urban grasslands. These species originate from regions with warmer and drier climates, resembling the conditions Berlin is expected to face in the future, ensuring a more adaptive and sustainable urban green space strategy.

These lists are particularly relevant for integrating ecological standards into urban planning. By offering clear, scientifically informed planting recommendations, our urban grassland plant guide promotes biodiverse, resilient and aesthetically valuable green spaces in the district's urban landscape.

You can find the detailed species lists in the Annex of our **Urban Grassland Study**.

Pictures of two species contained in our plant guides for urban grassland in Berlin Charlottenburg-Wilmersdorf (top: Savlia pratensis; bottom: Onobrychis arenaria). Image Credit: © Max Grünberg

Image Credit: © Jamie Chan

Grassland Evaluation Tool

In Charlottenburg-Wilmersdorf, a key urban greening objective is to enhance degraded grasslands while conserving ecologically valuable areas. To support this, we developed the Grassland Evaluation Tool (GET), designed to assess the ecological value of urban grasslands and identify opportunities for their improvement.

The primary goal of our GET is to provide a quick, reliable method for evaluating the biodiversity and ecological state of urban grasslands. Central to our GET is a carefully selected set of indicator species—plants that reflect the overall species richness of the grasslands. These species were chosen based on their ecological value and ease of identification. We began with a list of 116 species, considering criteria such as rarity in Berlin and presence in Brandenburg's indicator species list for rich grasslands. From this list, a final set of 59 indicator species was selected, focusing on those that are easily identifiable and observable during the main vegetation period (May and June).

To validate the GET, we conducted extensive surveys across 70 urban grassland plots in Charlottenburg-Wilmersdorf, representing various land types such as vacant lots, road medians, cemeteries and public green spaces. For each plot, we recorded the vascular plant species present, their frequency and abundance. Additionally, we assessed the condition of the grasslands by considering factors like usage intensity, disturbance (e.g., trampling, vehicle tracks), nutrient input, shading and mowing frequency. Surveys were conducted in two phases (May/June and July/August 2021) to capture a full species inventory across different plant growth stages.

Statistical analysis revealed a highly significant positive correlation between the indicator species and the total number of observed species (Fig. 4). This strong relationship confirms that the presence of indicator species can serve as an adequate proxy for assessing the ecological value of urban grassland areas, forming the basis of our GET's classification system.

Based on the number of indicator species observed in a plot, the ecological value is classified into one of four categories:

0-2 species: Very low ecological value (bad condition)

3-4 species: Low ecological value (poor condition)

5-6 species: Medium ecological value (moderate condition)

7+ species: High ecological value (good condition)

Our GET offers a practical, efficient approach for assessing and prioritizing urban grasslands for restoration. By applying GET, municipal Green Space Offices can prioritize restoration efforts and implement strategies to enhance biodiversity and resilience in urban environments.

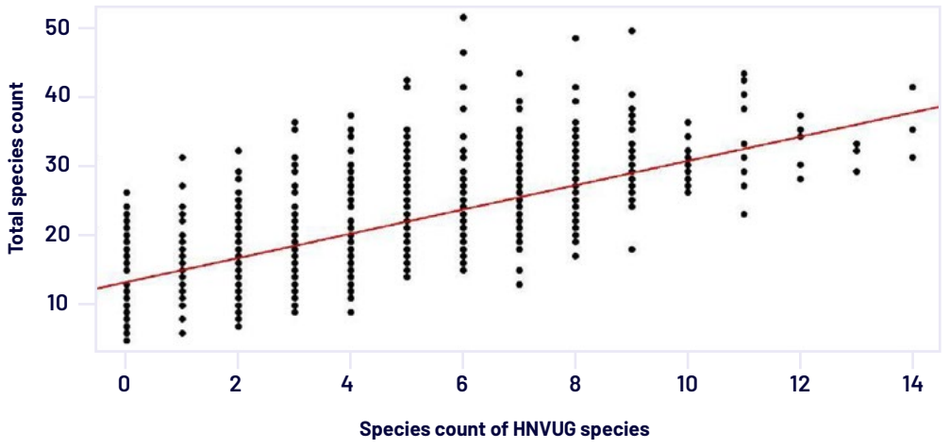


Figure 4: Validation of HNV-UG indicator for rapid assessment system of urban grassland. This figure shows a significant positive correlation between species count of HNV-UG species (x-axis) and total species count (y-axis) highlighting the effectiveness of HNV-UG species to represent general species richness urban grassland.

Picture of the wild perennial production at the District Nursery in Berlin Charlottenburg-Wilmersdorf in summer 2022. Image Credit: © Carsten Knobloch

Cultivating Resilience: Berlin-CW's Wild Perennial Production

To support the local cultivation of ecologically valuable species, we partnered with Charlottenburg-Wilmersdorf's district nursery, the only remaining municipal nursery in Berlin. This collaboration, involving the Green Space Office and the Nature Conservation Office, focused on the production and planting of high-nature-value grassland species to enhance biodiversity across the district. By working closely with nursery staff, we aligned planting recommendations and guided the nursery's production toward species that support local biodiversity and climate resilience.

A key challenge in restoring urban grasslands in Berlin is the scarcity of native plant material. While existing guidelines encourage the use of locally sourced seeds, their availability remains limited, and commercial production is insufficient to meet demand. Additionally, native plant material is rarely cultivated for sale, despite its high value for targeted conservation efforts and the establishment of resilient perennial plantings. To bridge this gap, we supported the district in developing its own wild perennial production, expanding the range to include native species from other German regions (e.g., Brandenburg, southern Germany) and selected non-native species from warmer climates (e.g., Pannonian, Mediterranean, and North American species) to enhance the climate resilience of urban grasslands.

Currently, around 70 wild plant species are produced annually, totaling approximately 10,000 plants. Some are planted in green spaces, some sold to other districts in Berlin, and approximately 1,000 to 2,000 are distributed free of charge to various engaged initiatives and educational institutions within the district. Additionally, the district nursery receives numerous requests from other municipalities and planners. This increasing demand highlights the limited market supply.

The long-term objective is to transform the municipal nursery into a biodiversity hub, functioning as both a production site for regional seeds and plant material and a center for ecological expertise and knowledge exchange. This transformation will enable the nursery to become a key resource for other districts, support ecological monitoring and strengthen collaboration within a broader biodiversity network.

By integrating all stages of grassland restoration—from seed and plant production to implementation and long-term maintenance—under the district administration's management, we are establishing a replicable

Climate Solutions for Mierendorff-Insel

Berlin's neighborhoods are increasingly feeling the impacts of climate change, experiencing amplified heat extremes, intense rainfall, and prolonged droughts. To address these challenges and ensure a healthy, attractive living environment, proactive measures are essential. In response, TNC and the Nature Conservation Office of Berlin Charlottenburg-Wilmersdorf have commissioned a climate adaptation plan for the southern section of Mierendorff Island— an area particularly vulnerable to climate effects while also undergoing significant urban densification.

In collaboration with stakeholders from the city administration and the local community, we developed and discussed 66 targeted measures centered around key topics:

- **Green Islands on the Island:** Establish extensive green areas to enhance biodiversity and provide relief from heat.
- **Lots of Life on the Island:** Connect and expand biotopes to create a thriving ecosystem.
- **WET Instead of Dry:** Implement intelligent water management strategies to make the most of this precious resource.
- **Green Instead of Gray:** Promote climate-friendly construction practices that integrate sustainability into new developments.
- **Roads of Tomorrow:** Design diverse mobility solutions to facilitate eco-friendly transportation options.
- **Shaping Together:** Foster collaboration and build new networks among residents and stakeholders.

This climate adaptation plan serves as a critical foundation for transforming Mierendorff Island into a climate-resilient and green neighborhood. By prioritizing these measures, we aim to enhance livability and ensure that the area remains vibrant and sustainable for future generations.

Watch our video about the Mierendorff Island Climate Adaptation Plan or download to read the Mierendorff Island Climate Adaptation Plan.

Image Credit: © Max Eicke

Grazing for Better Grassland

The Wilmersdorf Sports Park, like many sports facilities in Berlin, includes several underutilized areas with significant potential for nature conservation. Notably, the Wilmersdorf Stadium has undergone a remarkable transformation since the removal of its unused grandstands in 2005, which were largely removed and replanted with shrubs. Over time, however, these slopes became overrun with invasive woody plants, resulting in species-poor and inaccessible areas.

In partnership with the Department of Nature Conservation, we have been working to convert this woody vegetation into species-rich grassland through nature-based solutions. Since 2021, the introduction of sheep grazing on the former grandstands has played a crucial role in this transformation. The grazing effectively limits the spread of woody plants, creating space for new species to thrive and enhancing biodiversity. Additionally, drought-resistant plant species have been introduced in various areas to further enrich the local flora.

This initiative represents not only a significant ecological advancement but also a unique open-air laboratory for urban ecology. In collaboration with the Technical University of Berlin, ongoing monitoring has been implemented to assess the impact of grazing on vegetation development and species diversity, as well as the success of the newly seeded plants. Furthermore, regular monitoring of wild bee populations has been conducted to evaluate how grazing and diverse seedings affect pollinator activity.

This pilot project exemplifies successful cooperation among various municipal departments, including the Department of Education and Sport and the Department of Environment and Nature Conservation. It demonstrates that sports facilities and nature conservation efforts can coexist and thrive in close proximity, paving the way for innovative, sustainable practices in urban environments.

Watch our video 'Grazing for better Grasslands'

Sheep grazing on the former grandstands of Wilmersdorf Stadium. Image Credit: © Sebastian Kringel

Playing Green: Sustainability in Sports Facilities

Sports facilities offer a unique opportunity to support nature conservation and enhance climate resilience in urban environments. The extensive green spaces surrounding these sites not only provide valuable habitats for native flora and fauna but also serve as essential recreational areas where city dwellers can connect with nature. By integrating ecological design principles, these spaces can become key contributors to urban biodiversity and climate adaptation.

Charlottenburg-Wilmersdorf is home to over 20 sports facilities with large open areas. Many local sports clubs, which have been established at these sites for years, are actively involved in sustainability initiatives. Recognizing their potential, the district administration is committed to enhancing these facilities ecologically, ensuring they are better adapted to the challenges of climate change. As part of this effort, we— together with the Nature Conservation Office— commissioned a pioneering sustainable sports facility concept for Wilmersdorf Stadium, which serves as a blueprint for other sports sites.

The key objectives of this initiative include:

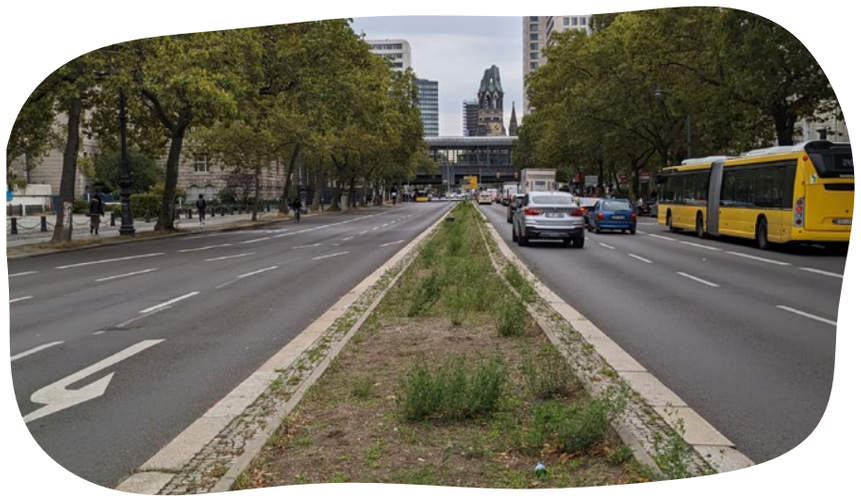
- Strengthening and transforming green spaces to improve climate resilience.
- Enhancing habitat connectivity and increasing biodiversity.
- Utilizing rainwater and securing irrigation for green areas.
- Reducing impervious surfaces and actively preventing further soil sealing.
- Managing municipal properties in a nature-friendly manner.
- Positioning public buildings as leaders in climate protection and adaptation.
- Encouraging private initiatives that contribute to urban nature.
- Raising public awareness about climate adaptation.
- Supporting and promoting sustainability efforts within sports clubs.
- Strengthening sustainable mobility and integrated transport solutions.

A crucial aspect of the project is the engagement of stakeholders and user groups to ensure broad acceptance and support. This includes:

- Identifying key stakeholders and user groups, such as athletes, walkers, families, and senior citizens, to address diverse needs and expectations.
- Conducting workshops, surveys, and participatory formats to involve local communities.
- Documenting feedback and integrating insights into the concept's development.

By prioritizing biodiversity enhancement and heat reduction, this project aims to set a new standard for sustainable sports facility management. The Wilmersdorf Stadium project will serve as a model for other sports facilities across Berlin and beyond, demonstrating how sports infrastructure can play a vital role in nature conservation and urban climate adaptation.

Picture of the Wilmersdorf Stadium with extensive green space cover on the former grandstands. Image Credit: © Maria Knaus



Reviving the Streets: Greening Hardenbergstraße

As part of our Greenprint, we conducted a detailed spatial analysis to identify greening opportunities within the streetscape of Charlottenburg-Wilmersdorf. This assessment identified more than 50 road medians with high potential for ecological enhancement. In collaboration with the district's Green Space Department, which oversees the maintenance of these areas, we selected 37 priority medians to be targeted for future greening and grassland restoration efforts throughout the district's streetscape.

To initiate this transformation, we launched a pilot project aimed at unlocking the ecological potenti al of a particular high-priority site: the road median along Hardenbergstraße, a prominent main street in Berlin's city center.

The Hardenbergstraße project involved converting the previously bare median strip into a species-rich flowering meadow through a carefully designed seeding process. Working closely with the Nature Conservation Office, we selected climate-resilient seed mixtures tailored to thrive under urban conditions. A horticultural company developed the planting concept, incorporating distinct plots with different seed mixtures.

To ensure the long-term success of this initiative, we established a vegetation monitoring program to track plant growth, assess species performance, and refine future planting strategies.

The experiences from the Hardenbergstraße pilot project will guide the greening and ecological enhancement of other priority medians throughout Charlottenburg-Wilmersdorf, enhancing species richness within the district's streetscape.

Pictures showing the transformation of Hardenbergstraße. Top: original condition before the project in Oct 2023 (image credit: © Anne Hiller); middle: seeding activities in late autumn 2023 (image credit: © Anne Hiller); bottom: first blossom in spring 2024 (image Credit: © Maria Knaus).

Figure 5: Site Plan showing the study area, the expected tram line development and canopy cover considered within the 300m buffer. Image Credit: TreesAI

Scenario Comparison			
	Baseline	**Scenario A:** ***Optimistic***	**Scenario B:** ***Realistic***
	357 trees = 2.6ha canopy cover	35 trees = 0.32ha canopy cover	131 trees=1.4ha canopy cover
	ES value over 10 years from all existing trees in a 50m buffer from the road	ES value over 10 years from trees that are to be cut according to a technical survey	ES value over 10 years from all trees at risk of being cut off if crown overlaps construction area
Total	€ 10,5M	€ 1,0M	€ 4,2M
Climate Regulation	€ 6,6K	€ 9400K	€ 3,9M
Water Management	€ 164K	€ 15K	€ 76K
Health Well-being	€ 2,8M	€81K	€227K

Figure 6: Comparison of the ecosystem service (ES) values for four scenarios over a 10-year period, calculated based on different levels of canopy cover loss due to the planned tramline development. Image Credit: TreesAI

Rooted in Resilience: Urban Tree Valuation at Mierendorff-Insel

Urban trees are facing increasing pressure from urban densification and the impacts of climate change. Despite their critical role in enhancing urban nature and climate resilience—by providing shade, loosening compacted soils, offering habitats for wildlife, and increasing transpiration—their value is often underrepresented in urban development processes. Traditionally, the valuation of urban trees in Berlin has relied on standard catalog prices, which only account for production costs (purchase and maintenance) and neglect the vital ecosystem services that trees provide to society.

To address this gap, TNC and the Nature Conservation Office launched a project focused on advanced tree valuation, emphasizing the ecosystem services related to climate adaptation, stormwater management and human health. As a case study, we conducted a comprehensive assessment of the ecosystem services and monetary value of street trees on Mierendorff Island (MI) in Charlottenburg-Wilmersdorf. This project specifically targeted 131 public street trees potentially threatened by the planned extension of the M10 tram line (Fig. 5). Results show that the total estimated economic loss from the removal of these trees amounts to approximately €4.2 million over 10 years (Fig. 6).

The assessment provided the district's Nature Conservation Office with a detailed and robust valuation of individual street trees in the MI neighborhood, informing future planning and decision-making processes, as well as facilitating negotiations for appropriate mitigation measures regarding the tramline extension.

The findings of this project were presented and discussed with various stakeholders during a public event in the MI neighborhood in March 2025. The results will serve as a critical reference for the Nature Conservation Office and local initiatives advocating for construction designs that prioritize the protection of existing trees, thereby ensuring that the invaluable benefits urban trees provide are recognized and preserved.

Image Credit: © DUH

Woods ‘R’ Us: Schoolyards as Natural Spaces and Climate Oases

Most German schoolyards have been designed to be very low-maintenance, meaning a concrete-heavy space with little shade and natural elements. With an increase in global temperatures, these areas are becoming unusable, even dangerous to human health, during the hottest months, thus restricting their usefulness for both students and communities. Together with Deutsche Umwelthilfe, we worked to transform schoolyards into biodiverse, climate adaptive spaces that offer shade, cool the air and provide ecological benefits. The first phase of the program consisted of three parts:

Direct Connection with Decision Makers

Part 1 is a national congress on the theme of nature-based outdoor spaces for children in childcare facilities and primary schools; it unites scientific experts from various disciplines who can exchange experiences and strategies.

Online Symposium

Part 2 is a specialist program of events offering practical advice on greening schoolyards. Target groups included educators, local authorities and urban planners.

Tiny Forests

Part 3 is the planting of "Tiny Forests" in three pre-defined public schools in Berlin, Bremerhaven and Dieburg near Frankfurt. These groves are small yet important in their contribution to the local microclimate and as a practical learning environment for the students.

With the initial implementation of Woods ‘R” Us being highly successful, we were able to work with Deutsche Umwelthilfe to further scale its reach, adding expansion into additional schools and communities. Woods ‘R’ Us 2.0 will strengthen the discourse around nature-based, resilient and participatory redesign of schoolyards. It will also further contribute to nationwide exchanges of best practice and thus enable cooperation, including across municipal administrations, school authorities and planners. Another national congress will focus on the management of rainwater, greening of façades, and reduction of thermal stress on schoolyards. In addition, the program will encourage schools to intensify their nature-based design by showing best practice projects and

Heat in the Dense City Study: Understanding Heat's Impact on People

As cities expand to provide growing populations with housing and infrastructure within their existing footprint, the common "redensification" approach conflicts with the challenges of climate adaptation. And despite our current understanding of the urban heat island effect, cities aren't doing enough to combat the increasing thermal burden on residents.

Children, the elderly and poorer people in particular suffer from heat. In some cases, this is due to biological factors—children, for example, are more susceptible to high temperatures—but also because they are more exposed to extreme heat. In so-called hotspot districts in particular, green spaces are rare, trees tend to be neglected and noise and air pollution from traffic are added to the mix. This means poor environmental conditions for people who are already experiencing multiple, including socioeconomic, disadvantages.

Studies such as the Berlin Environmental Justice Atlas have been highlighting this issue for years. However, very few municipalities in Germany have sufficient resources and data-supported information to use a basis for making decisions on appropriate mitigation planning and measures.

Through the "Heat in a Dense City" study, TNC supported Deutsche Umwelthilfe (DUH) in efforts to establish locations in Germany where the thermal burden on vulnerable groups is particularly high and where planning authorities need be more sensitive in regard to redensification and the provision of green spaces.

DUH utilized innovative instruments, such as remote sensing, to enable municipalities to identify the most affected urban areas without time-consuming and cost-intensive traditional climate analyses. UrbanGreenEye, a federally funded research project that uses Copernicus satellite data to determine parameters relevant to climate adaptation in cities, was a starting point for the project. UrbanGreenEye collects up-to-date, nationwide indicators on sealing, green volume and surface temperature. Researchers combined these indicators with the 2022 census data to derive a heat stress index that provides answers to questions such as: "Where in Germany are the most people affected by urban heat?"

Using the Friedrichshain-Kreuzberg District in Berlin as a test model, the results of the climate adaptation concept were combined with remote sensing methods and sociodemographic data. This provided answers to an additional question: "Where are hot spots in a heavily dense and sealed district affecting vulnerable populations?"

Researchers used their findings to address the following additional questions:

- How can the remote sensing data that provides information on sealing, green volume, and surface temperature be combined with social data to identify urban areas with multiple pollution challenges?
- How can district-specific climate change adaptation measures be derived and prioritized?

Image Credit: © Gabriel Parsyak

Image Credit: © Gabriel Parsyak

In order to answer these questions, researchers transferred the heat stress index to all municipalities throughout Germany and thus gained an orientation as to which places are affected by multiple stressors. In the next step, they used three comparable urban space typologies to derive suitable categories of measures for the corresponding urban structure and urban density. The focus was on NBS and the exchange with municipal actors in the development and evaluation of these solutions to ensure practical relevance.

As mentioned above, the densely populated, Wilhelminian-style district of Friedrichshain-Kreuzberg offered us a concrete use case. There, researchers used existing knowledge and municipal contacts (including the city's climate protection manager and district management) to analyze the effect of additional greenery on the local microclimatic conditions using microscale simulations. Special attention was paid to the climatic relief effect of picoparks: In densely built-up cities, where the few existing open spaces need to fulfill many usage requirements at the same time, these small, near-natural green spaces combine many ecosystem services. In addition to increasing greenery for thermal and health relief, they also contribute to the improvement of biodiversity and can serve as a place of recreation, learning and experience for the neighborhood. Picoparks, therefore, represent a very low-threshold measure that can be implemented relatively quickly, especially in tight urban structures with little potential for unsealing.

In addition, researchers worked with 10 model municipalities from the Urban Green Eye project in a practice-oriented exchange to highlight the potential for remote sensing to be integrated into urban planning. This part of the project focuses on processing and providing data to identify concrete application steps for municipal planning processes and also explore the limits of integration. The results were prepared in a measure-oriented practical guide and made available to municipalities and key stakeholders.

The central project goals included:

- Application and dissemination of remote sensing instruments to determine climatic and social stressors in German municipalities by linking the indicators of sealing, surface temperature, green spaces and social status to form a heat stress index
- Classification of the cityscape based on urban density for a comprehensive analysis of potential categories of measures
- Demonstration of how the increase or decrease of greenery impacts the quality of time spent in a high-density outdoor space in a model district with multiple loads
- Special investigation of the microclimatic effect of picoparks
- Creation of a workflow for the early consideration of urban green issues for climate adaptation in municipal planning, construction and renovation projects
- Provision of findings and expertise from remote sensing evaluations and derived strategies in up to 10 model municipalities
- Knowledge transfer and sensitization of the issues through dissemination of the project results

Results are pending as of May 2025.

The Nature Conservancy

Europe Urban Greening (EUG) Program Report

The Nature Conservancy in Europe gGmbH
Schiffbauerdamm 8, 10117 Berlin

www.nature.org/europe