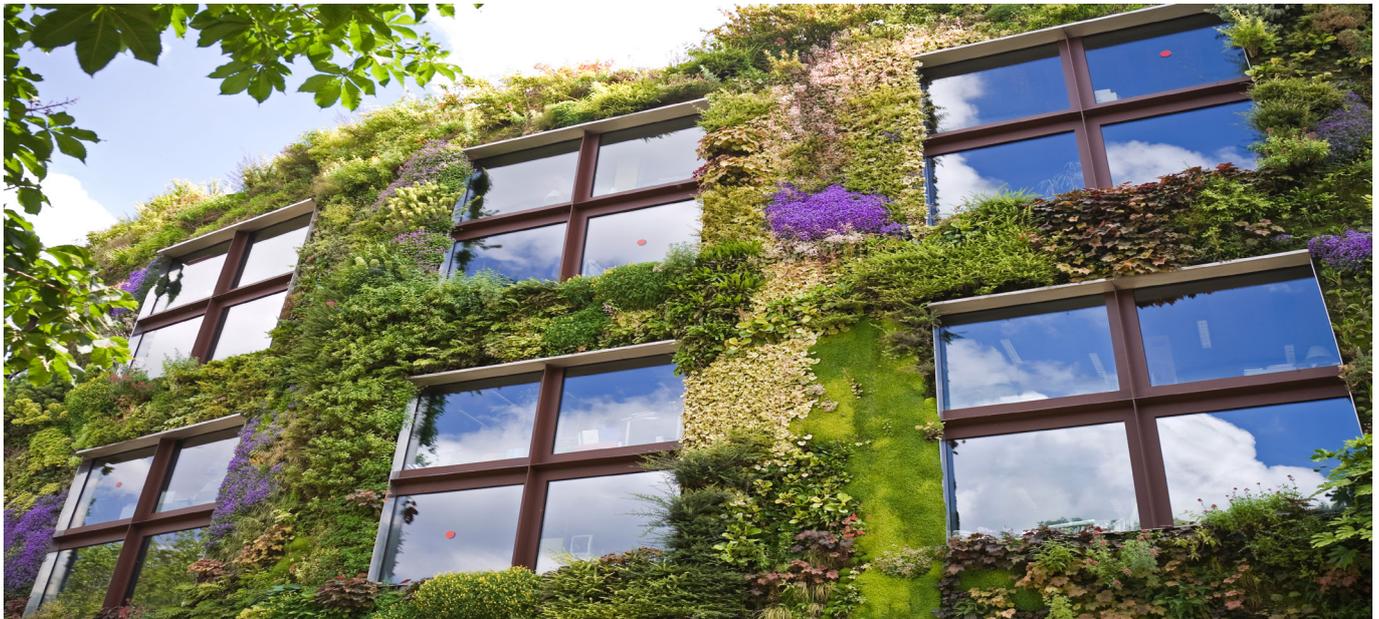




CONSERVE, RESTORE, AND THRIVE: CITIES ARE LEADING ON NATURE-BASED SOLUTIONS



KEY POINTS

- European cities are making explicit contributions to biodiversity through nature-based solutions, using quantitative targets.
- The Post-2020 Global Biodiversity Framework should incorporate the goals of Conserve, Restore, and Thrive that cities pursue in their biodiversity efforts, and use SMART targets to better engage cities.
- Urban nature-based solutions need to further integrate biodiversity goals, as well as restoration actions that emphasize species and genetic diversity.

THE NATURVATION PROJECT

NATure-based URban inNOVATION is a 4-year project involving 14 institutions across Europe in the fields of urban development, geography, innovation studies and economics. We are creating a step-change in how we understand and use nature-based solutions for sustainable urbanisation.



Why we need a Global Biodiversity Framework that works for cities

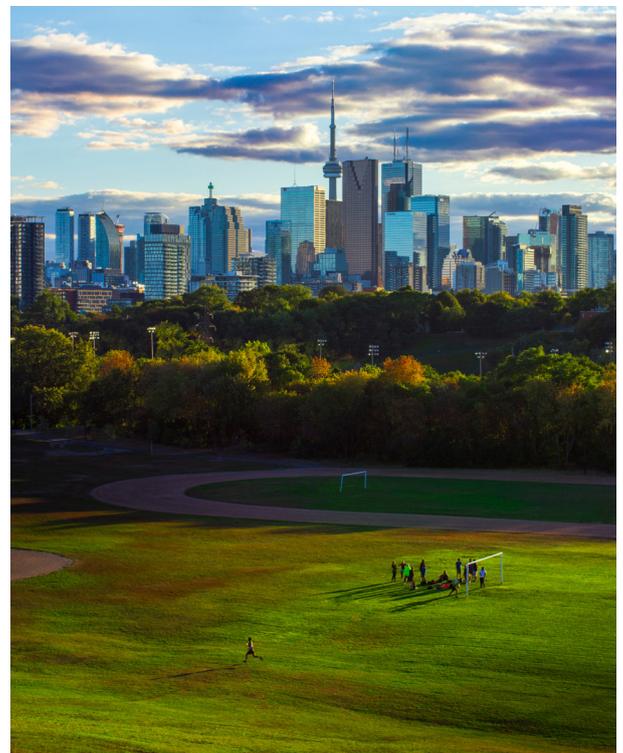


In the context of the Post-2020 Global Biodiversity Framework, this briefing note 1) articulates why we need a framework that work for cities; 2) reviews actions that cities are already taking in the realms of Conserve, Restore, and Thrive, based on the research of the NATURVATION project; and 3) makes the case that these actions should be acknowledged in the Framework and form the basis of any urban-focused commitment platform.

Mobilisation of local and subnational stakeholders is critical to reaching the highest ambition of the Post-2020 Global Biodiversity Framework. Cities are already actively implementing nature-based solutions as our research findings below demonstrate. But cities tend to take action in the context of specific kinds of parameters, and thus the Framework and commitment platforms need to appeal to this context.

To catalyse subnational action, the Framework and any commitment platforms need to:

- Specify the role that cities and subnational governments can play in implementing the Post-2020 Framework (CBD 2020) and incorporate the broad goals of Conserve, Restore, and Thrive that cities have for their work on biodiversity.
- Articulate how transformative interventions on biodiversity undertaken by cities could lead to transformative outcomes not only for biodiversity itself, *but for urban society*.
- Ensure that biodiversity goals, and particularly biodiversity restoration and genetic diversity, are more integrated in urban nature-based solutions.
- Employ SMART (specific, measurable, achievable, relevant, and time-bound) targets and indicators in order to make them more tangible and 'seizable' by subnational governments (Rankovic et al 2020).



Categorizing urban contributions to global biodiversity goals



Research undertaken by the NATURVATION project reveals that many cities are already actively engaged in nature-based solutions. These subnational government actions resonate with the Post 2020 framework, and should form the basis of any urban-focused commitment platform. City contributions to global biodiversity goals can be categorized as actions that **Conserve** nature, **Restore** nature, and mobilize people's ability to **Thrive** with nature (or how nature contributes to society).



CONSERVE

Urban nature is seen to hold significant promise in enabling the urban transition to sustainability. It has the potential to provide multiple benefits across the range of sustainability challenges facing cities and it offers flexibility in the face of a changing climate.

RESTORE

Urban nature has often been degraded by pollution and waste. Restoring river valleys, urban parks and green spaces in the city can improve the conditions for wildlife in the city and generate new spaces for people to enjoy. Restoring urban nature can also help cities to protect themselves from flooding or droughts and contribute to economic regeneration.



THRIVE

Urban nature contributes to the health, well-being and livelihoods of citizens. Connecting to urban nature allows communities and individuals to thrive, boosting mental health and creating new opportunities for work and leisure. Urban nature allows cities to thrive by enabling economic regeneration, enhancing environmental quality and creating community well-being.

What kind of action are cities taking on biodiversity?



Of the 976 nature-based solutions across European cities catalogued in the NATURVATION project's Urban Nature Atlas, 351 projects have explicit goals and actions on biodiversity. This means that not all nature-based solutions are geared toward a biodiversity agenda.

Cities prioritize conservation and how nature contributes to society, over restoration. Nature-based solutions located in large urban parks and community gardens focused primarily on *conserving* nature, and *thriving* with nature, with much less attention placed on *restoring* nature.

Cities are placing equal attention on restoration when focused on bodies of water. Among nature-based solutions located in urban rivers, streams, and estuaries, *restoring* nature received a relatively similar level of emphasis as *conserving* nature and *thriving* with nature.

Cities are focused on the whole urban ecosystem. Across all types of nature-based solutions, goals and interventions were mainly ecosystem-based, focusing on the protection, restoration, or enhancement of the integrity, functionality, and connectivity of habitats and ecosystems. Fewer projects were focused on species or genetic diversity.

Cities are using quantitative targets. A significant number of nature-based solutions established specific quantitative targets to guide implementation. Out of 93 ecosystem-based nature-based solutions that involved large urban parks, 52 had explicit quantitative targets. However, these project-based targets being out of alignment with the plan-based Aichi Biodiversity Targets raises doubts about the latter's relevance to the urban realm.

Data and criteria used for this research

The findings are based on an analysis of 199 nature-based solutions in the NATURVATION project's Urban Nature Atlas, including interventions located in:

- 107 large urban parks and forests
- 64 rivers, streams, estuaries
- 63 community gardens

Nature-based solutions were found to have one or multiple goals under the conserving, restoring and thriving categories.

The dimensions used to analyse nature-based solutions that contribute to a thriving environment and society were: 1) cultural contribution; 2) social contribution; 3) economic contribution; 4) contribution for climate; and 5) contribution for environmental quality.

<https://naturvation.eu/atlas>





QUANTITATIVE BIODIVERSITY TARGETS USED IN EUROPEAN CITIES			
Intervention	Quantitative target	Project	Location
Trees to be planted	Planting 18,000 trees and bushes	Krupp Park project	Essen, Germany
	Adding 135,000 plants	Green Park on Highway Tunnel	Utrecht, Netherlands
Green or blue areas created or restored	Afforesting 320 ha of new forest within four years	Afforestation project	City of Århus, Denmark
	Constructing 23 hectares of the park, 9,100 m ² of water surface area, and 4.5 hectares of forest area	Krupp Park project	Essen, Germany
Green spots created	Creating 10 diversified gardens in 33 different plots	Community garden project	City of Lille, France
Species protected or reinforced	Protecting 80 species of nesting birds and 134 types of insects	Teutoburg Forest Nature Park	Bielefeld, Germany
	Preserving more than 12,000 endemic plant species	Diomidous Botanical Garden	Athens, Greece
Jobs created and people to benefit	Boosting regeneration and creating 500 jobs	Nine Lakes Project	Wakefield, UK
	Facilitating access to riverside sites for 630 people from disadvantaged communities	Sowe Valley Project	Coventry, UK

How are cities conserving, restoring, and thriving with biodiversity?

Conservation is a high priority among urban nature interventions

The majority of urban nature-based solutions (174 out of 199 projects) had conservation goals. The most popular conservation actions in 94 large urban parks were: Preserving and strengthening existing habitats and ecosystems (47 projects) and Creating new habitats (42 projects). *Other conservation measures used:* Preserving and strengthening ecological connectivity, Protecting valued, native, or endangered species; Raising public awareness; Creating and using scientific knowledge for conservation; Managing and protecting biological resources for conservation and sustainable use; Promoting public engagement; Reducing negative impacts; Avoiding the alteration and damage of ecosystems; and Controlling and cleaning invasive alien species. *Measures seldom used, or not used:* Capacity building; Ex situ (off-site) conservation; Protecting and applying traditional knowledge and conservation practices; and Biodiversity offsets.



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Restoration is receiving less attention from cities



Compared to conservation, restoring biodiversity has received much less, and varied, attention in urban settings. About 43 percent of nature-based solutions in large urban parks and forests (43 out of 107 projects) have restoration goals and actions. Restoration was given higher priority (70 percent of projects) in urban rivers, streams, and estuaries, and lower priority (17 percent of projects) in community gardens.

Nearly all nature-based solutions with restoration goals and efforts involved rehabilitating and restoring degraded ecosystems. This included 40 out of 43 projects in large urban parks; 43 out of 45 projects in rivers, streams, and estuaries; and 10 out of 11 projects in community gardens. Among urban nature projects in rivers, streams, and estuaries, rehabilitation and restoration of degraded ecosystems often involved re-naturalization of a water course or riverbed. For example, the Grémillon Stream Flooding Control Planning project in Nancy, France planned to decrease water flows and remove artificial banks to create a natural stream for ecological gain. *Other restoration measures used:* Restoring valued, native, and endangered species; Clearing and controlling invasive alien species; Restoring ecological connectivity; and promoting public engagement. However, these measures have not yet been widely employed by the projects.



Thriving with nature is also a high priority in cities, leading to cultural, social, economic, climate, and environmental benefits

Nearly 91 percent of nature-based solutions incorporate aspects of thriving with nature, facilitating a contribution to community health, well-being, and livelihoods. Projects focused on large urban parks and forests, and on rivers, streams, and estuaries, mainly provided cultural benefits. Projects focused on community gardens mainly provided social benefits.

Cultural contributions. Recreational benefits were most prevalent. Other contributions included: Cultural heritage; Connecting to nature; Aesthetic; Artistic value; and Sense of ownership and identity.

Social contributions. Education development and scientific research support were most prevalent. Social cohesion played a significant role (48 percent) in community garden projects, but was missing in projects around rivers, streams, and estuaries, and in only 6 projects in large urban parks and forests. *Other contributions included:* Well-being; Health; Social justice and equity; Liveability; and Safety.

Economic contributions. Among projects in large urban parks and rivers, streams, and estuaries, economic benefits were mostly related to the promotion and enhancement of 1) urban regeneration and development; 2) local tourism; and 3) economic production. Among community garden projects, the primary economic contribution was promoting economic production, whether for profit or not.

Climate mitigation and adaptation contributions. Flood prevention and management was the most prevalent. Other contributions included: Carbon sequestration and emission reduction; Heat-island effects reduction; and Micro-climate improvement. Only 2 projects (one urban parks and the other in rivers, streams, and estuaries) contributed to prevent drought and desertification.

Environmental quality contributions. Improvement of water regulation and quality improvement was the most prevalent, followed by control and improvement of air quality. Other contributions included: Noise control; Soil protection and amelioration; and Pollution abatement.

Applying these findings



Cities are already mobilizing diverse nature-based solutions as a contribution to the Post-2020 Global Biodiversity Framework, and the research results above demonstrate the feasibility of cataloguing these actions in service of this agenda. To encourage further urban action, the Framework and commitment platforms should acknowledge the specific roles played by subnational governments; incorporate the broad goals of Conserve, Restore, and Thrive that cities pursue in their biodiversity work; and employ SMART targets and indicators. In turn, cities should ensure that biodiversity goals are more integrated in their actions.



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Massive Open Online Course (MOOC) on Urban Nature-Based Solutions

The NATURVATION project is launching a Massive Open Online Course (MOOC) on nature-based solutions in an urban world. The MOOC will develop an online learning community and contain a collection of inspiring and educational films about the opportunities, challenges and future of nature-based solutions. The MOOC will launch on 13 January 2020. It is a 5 weeks course that runs 7 times a year.

Nature-based solutions have the potential to provide multiple benefits across a range of sustainability challenges facing cities. They can help to limit the impacts of climate change, enhance biodiversity and improve environmental quality while contributing to economic activities and social well-being. Examples include green roofs and city parks that reduce heat, city lagoons that can store water as well as vegetation and rain gardens to intercept storm water.

This course will explore nature-based solutions in cities in Europe and around the world. It will connect together the key themes of nature, cities and innovation. We will discuss how to assess what nature-based solutions can achieve in cities. We will examine how innovation is taking place in cities. And we will analyse the potential of nature-based solutions to help respond to climate change and sustainability challenges.



This course combines both technical knowledge and the social sciences to better understand nature-based solutions in a holistic perspective. New governance arrangements, business models, financing and forms of citizen engagement will be needed to make the promise of nature-based solutions a reality. In this course, we bring together a collection of diverse films and key short readings on nature-based solutions, as well as, interactive forums and practical assignments to create an online learning community.

Watch the video introduction:
<https://youtu.be/JKjRkzxp31M>

Join the course:
<https://naturvation.eu/engage>