Rethinking urban greenery: A nature-based approach to biodiversity management

openaccessgovernment.org/article/rethinking-urban-greenery-a-nature-based-approach-to-biodiversity-management/194378

Emily Warrender June 20, 2025

This article examines the urbanLIFEcircles project as an example for integrating biodiversity management into urban planning through nature-based solutions

The role of urban biodiversity in contemporary city planning

Urban biodiversity – the variety of life within city ecosystems – plays a vital role in sustaining ecological processes, mitigating climate change, and enhancing public wellbeing. Despite these benefits, urban areas have often been designed and maintained with limited consideration for biodiversity. In many European cities, green areas are often dominated by intensively managed lawns and ornamental plants, which offer low ecological value.

The EU Biodiversity Strategy for 2030 calls for increased efforts to restore nature in cities, including ambitious goals such as reversing biodiversity loss, expanding green infrastructure, and incorporating nature-based solutions. This article presents the urbanLIFEcircles project as an actionable and evidence-based response to these goals, demonstrating how biodiversity management can be integrated into urban policy and planning.

The urbanLIFEcircles initiative

urbanLIFEcircles is a European Union LIFE Programme-funded project led by the City of Tartu in partnership with Aarhus (Denmark) and Riga (Latvia). Its central aim is to create a coherent ecological network in urban settings by improving the quality, quantity, and connectivity of green spaces. The project operates at the intersection of ecological restoration, urban planning, and civic engagement.

Core objectives include:

- Improving ecological connectivity across city landscapes
- Promoting biodiversity-sensitive urban governance
- Involving citizens and private landowners in habitat creation
- Mainstreaming biodiversity into strategic planning tools and maintenance contracts

This multi-scalar approach positions urbanLIFEcircles as a replicable model for municipal biodiversity action across Europe.

Urban biodiversity management in practice

The urbanLIFEcircles project applies a range of interventions tailored to local ecological and cultural contexts. In Tartu, biodiversity-focused management practices were introduced in parks, roadside verges, and residential courtyards. Specific actions included:

- Transitioning from high-frequency mowing to mosaic mowing or no-mow zones;
- Replacing uniform grass lawns with native flowering meadows;
- Introducing native, perennial, and structurally diverse vegetation;
- Establishing biodiversity corridors through groves, meadows, and restored stream corridors
- Installing ecological features such as deadwood piles and nesting boxes.

The project also introduced a small gardening grants scheme to support biodiversity improvements on private properties. Apartment associations and individuals were encouraged to create habitat features such as small ponds, sandariums, meadow patches, and hedgerows. Professional support from landscape architects, ecologists, and planting guides was provided to facilitate adoption.

A significant innovation is the integration of biodiversity into digital planning tools, including GIS-based support systems and a connectivity analysis model for amphibians. These tools allow spatially explicit planning, with overlays of species richness, habitat condition, and green infrastructure connectivity.

In parallel, Tartu is preparing a Biodiversity Strategy to 2050, complemented by an Urban Greenery Plan and reformed maintenance contracts that embed biodiversity indicators and goals.

Ecological and social outcomes in Tartu and beyond

Monitoring data from Tartu demonstrates measurable ecological improvements in response to reduced mowing and increased habitat complexity. In 2023, urban areas managed with biodiversity in mind showed a significant increase in pollinator species richness. Butterfly diversity, for example, doubled in low-mowing areas compared to conventionally managed sites (24 vs. 12 species). Scientists from the University of Tartu will continue monitoring throughout the project.

Citizen engagement has been a notable success of the project. Participants in the gardening grants programme expressed satisfaction with the process and outcomes, saying that biodiversity-friendly gardening is something they want to pursue going forward. These citizen-driven actions helped expand the biodiversity network beyond public land and fostered a shared sense of responsibility for urban nature.

Social attitudes toward wild-looking vegetation also showed positive change. Feedback from local communities indicated that awareness campaigns, signage, and volunteer events contributed to a better understanding of biodiversity goals. Visual identity elements (e.g., consistent signs in meadows) helped legitimize less manicured spaces in the eyes of the public.

Similar interventions in Aarhus and Riga showed comparable results, though adapted to local urban contexts. The project's transnational character facilitated the exchange of methodologies and learning across cities.

Replicability and policy relevance across Europe

The urbanLIFEcircles project offers a compelling case for mainstreaming biodiversity management in urban governance. By integrating ecological knowledge into spatial planning, landscape architecture, and public engagement strategies, the project aligns closely with EU-level biodiversity and climate resilience objectives.

Three features stand out as particularly replicable:

1. Ecological maintenance regimes –
   Shifting away from over-managed greenery can quickly yield biodiversity gains at low cost.
2. Private land activation –
   Engaging private landowners fills critical gaps in connectivity and expands habitat availability. This can also be replicated with schoolyards and kindergartens.
3. Public communication –
   Transparent, participatory processes increase public acceptance and reduce resistance to novel ecological aesthetics.

The project illustrates how municipalities can operationalize nature-based solutions not only in flagship projects but in the day-to-day management of green space. It also provides a model for embedding biodiversity goals into urban policy frameworks, budgets, and maintenance contracts.

Challenges remain, including balancing multiple land-use demands, overcoming aesthetic preferences shaped by decades of standard park design, and ensuring continuity beyond the project's funding. Nevertheless, urbanLIFEcircles demonstrates that meaningful change is possible within the municipal policy cycle.

Toward ecologically inclusive cities

As cities face growing pressures from climate change, urbanization, and biodiversity loss, the need for integrated, nature-positive planning has never been more urgent. The urbanLIFEcircles project offers a grounded example of how biodiversity management can be embedded in urban design, operations, and culture.

Its success lies not only in technical interventions but in cultivating a new ecological ethic among planners, residents, and institutions. Tartu, Riga, and Aarhus demonstrate that cities can be both livable and wild, structured and spontaneous, functional and biodiverse.

Municipalities across Europe and the Nordic region are encouraged to adopt, adapt, and build upon this model as they work toward ecologically inclusive and resilient urban futures.

This article is based on the urbanLIFEcircles project, co-funded by the LIFE Programme of the European Union under Grant Agreement No. 101074453.

Primary Contributor

Mirjam Võsaste
Tartu City Government