

Managing green spaces for urban biodiversity

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- Cities are responsible for most of the consumption of the world's resources and are home to most of the world's citizens as well. Bringing green space to the urban landscape can promote and inspire a better relationship with the environment while supporting important services.
- Green space is part of and also represents habitats and ecosystems. The promotion and conservation of green space in cities is in the hands of local and regional authorities.

Biodiversity & people need green space

Biodiversity is the living diversity of nature and is an aspect of the environment that many people appreciate. It is important to integrate biodiversity into daily city life besides its rural management and protection. Urban biodiversity includes plants and animals within the built environment, but also patches of land that have survived city expansion, representing the area before dense human settlement.

Cities cover 2% of land space worldwide but consume 75% of the resources. As of 2007 more than half of the world's citizens live within cities, showing the importance of cities and their impact on the planet. This affects biodiversity significantly, not just at the local level, but also through the extensive resources imported into cities. This resource intake can, however, be made more

biodiversity-sensitive, for example through sound purchasing policies.

Cities are connected to larger ecosystems and don't exist in isolation. Beneath the steel and concrete of cities are the soil and waterways that are connected to the areas outside city boundaries. By promoting quality green space within cities biodiversity can be protected and enhanced, and can also be brought closer to city dwellers. Beyond supporting a variety of species and habitats, urban green space

contributes to essential services including water filtration and absorption, nutrient cycling, air filtration and noise buffering.

Contributing significantly to people's quality of life in the city, green space is a place for exercise, relaxation and social interaction. Exposing city dwellers to local biodiversity can also trigger interest in environmental issues, especially since people's first encounter with the environment is often in one's home city or town rather than in distant places.



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Urban green space provides local services

The lack of established and zoned green space is a factor of urban sprawl as people move to the edge of a city to be closer to the rural setting that feels like a healthier environment. From 1980-1990 urban growth covered the size of Luxembourg (EEA2006).

Unused land within cities, such as railway sidings with vegetation can help connect green spaces throughout the city, creating corridors between larger green areas, thereby enhancing habitat for biodiversity as well as improving its capacity to provide ecosystem services. For example, promoting natural vegetation everywhere in the city strengthens resistance to floods and droughts, and promotes healthier biological processes such as pollination. Influencing the vegetation of the city can

facilitate more diverse insect and animal species in the city since different animals depend on different plant species. Catering vegetation specifically to an area can even reduce maintenance costs, for instance a typically wet area can be planted with species that flourish in wet surroundings, bringing with them animal species belonging to wet areas as well. Local vegetation also often has many species that reseed themselves or live several years, requiring little human attendance or input of water and fertilisers, cutting costs. Complex species assemblages further improve soil health and its capacity to absorb flood water as well as filtering that water. Quality green space, especially with trees, takes in carbon at an increasing rate over time as plants grow larger, helping



to reduce green house gases and filter the air. As opposed to lawns mixed with exotic species requiring time and resource input, local diverse vegetation can be more productive and offer more support to ecosystem services.

A very relevant service green space provides is the interaction of city residents. People have long enjoyed green spaces within cities and it

increases their quality of life on many levels. It is with modern understanding of ecosystems and biodiversity that the improvement of life quality provided by these green spaces runs much deeper than their aesthetic appeal. By being in nature people can better develop a connection with nature and feel a sense of responsibility rather than alienation.

Cities connect to surrounding ecosystems

London Biodiversity Partnership

With Greater London covering a very large amount of land, the city nonetheless enjoys the forty percent of its area that is green space. The areas are not just green, but contain diverse habitats such as wetlands, marshes, fields and heathland that support valuable wildlife. Established in 1996 in accordance to the UK national biodiversity action plan, the London Biodiversity Partnership is a collection of 31 local action plans relating to specific species and habitats in London, while cross-cutting other local issues.

The capital city of the UK contributes locally to the quality of life of its inhabitants while helping to reach national goals of certain types of habitat and biodiversity, like rare heathland. Numerous diverse partners are involved in the effort, and the green spaces of the city are part of a green corridor network and a green belt within the heart of the city. More than 1200 especially important sites have been identified, covering 28.000 of the cities 158.000 hectares.

<http://www.lbp.org.uk/>

Urban environments exist within larger ecosystems, but often seem to be isolated. The importance of reconnecting cities with the wider environment affects city dwellers and local species populations alike. Urban green space creates connective corridors and belts that are of vital importance. For instance they allow animals (e.g. birds, foxes and bees) to move between core green areas, and also for processes, like draining water away from city centres to the periphery.

Biodiversity is not only an issue of the quantity of species and their habitats, but of the quality of areas and processes. This relates very

much to the local scale because much of biodiversity's quality exists in its locality, referred to as *in situ* biodiversity. Biodiversity existing in its natural setting is considered most valuable, as opposed to specimens in zoos and botanical gardens. For instance, an assemblage of plants and animals that has occurred in an area for millennia may not have a comparatively high number of species, but may have special characteristics as an integrated system together. Targeting single species is nonetheless often an easier task for cities.

Action towards biodiversity conservation in urban greenspaces

Green space is one component of biodiversity management, and the most obvious. It can be a very visual and immediately effective part of biodiversity improvement. The most obvious places are parks within cities, but community gardens and residential yards can also greatly contribute to biodiversity enhancement.

Integrative designs and development may significantly enhance the biodiversity value of a city without incurring significant costs. Incorporating biodiversity into policy and action can make cities more attractive places to live and work, increasing people's general quality of life. Nature areas also offer innovative solutions for tackling other social and economic issues facing major cities, such as flood protection and social exclusion.

Incorporating detailed knowledge of local and regional habitat and species distributions along with important social elements can make the valuable space of cities multifunctional. By establishing the size and distribution of habitat areas required for conservation of the key biodiversity elements, biodiversity can more efficiently be improved and managed.

Activities for improving biodiversity include native planting programmes, green roof promotion and encouragement to use regional and organic products free of genetic modification. Promoting local organisations and businesses with good practices and educating citizens, especially youth, is also part of biodiversity management.

Within local and regional administrations, setting dates and clear targets for biodi-

Connecting services & action

- Encourage vegetation near buildings with plantings on balconies, in window boxes and on roofs.
- Promote residential gardens. Decorative or vegetable gardens are more diverse than plain lawns.
- Integrate biodiversity goals directly into urban planning.
- Engage businesses that can play an important role, such as railway companies that have land along tracks.
- Create a public awareness strategy and facilitate participation.
- Avoid wasting water run-off from streets and buildings.

versity action with good assessment tools is important.

Avoid urban sprawl with innovative and appropriate living densities, such as building on brownfield sites, sites of former industrial ac-

tivity, rather than green areas. Also integrating various administrations, planners, architects and stakeholders into the process can tap into a diverse set of expertise.

Invasive alien species



Part of focusing on the flora and fauna diversity of urban areas, and other areas within the governance of local and regional authorities, is establishing a policy towards alien and invasive species.

Alien species are understood as those plants and animals coming from outside a set area. When these species are very adaptable and take advantage of their new environment, they can spread extensively, out-competing local and native species important to the region. Not only do these species replace important local and regional species, but they often disrupt important processes, such as water filtration and

nutrient cycling. They can also affect human health directly and indirectly. Invasive alien species are one of the main drivers of biodiversity loss around the globe and are estimated to cost billions of dollars in damage every year.

Educating citizens to avoid certain plants, and removing them from gardens and lawns is a first step. More aggressive programmes to remove unwanted species city-wide and area-wide is the responsibility of local and regional authorities requiring proactive measures, such as burning or replanting affected areas.

Popular perception of nature

Many challenges with natural resource management and protection, including with biodiversity management, stem from poor or uninformed perceptions of 'nature'. Indeed some say all environmental problems are rooted in humanity's emotional or perceptual relationship with the environment.

For many people, the common words 'nature' and 'wilderness' evoke images of places far from cities. It is perceived as the opposite of the urban landscape and human-impacted environments. Perceiving these environmental components as opposites in a time when environmental issues are in the forefront of political issues can give disproportionate emphasis on those 'wild' or 'natural' places while leaving out the important urban landscape where most people live.

The notion of what is 'natural' is especially complex. For instance in Europe people have been intensely part of the landscape for thousands

of years and there is virtually no place that remains unaffected by human impact.

The modern concepts of biodiversity and ecosystems have the potential to remedy this misconception. Ecosystems show that components within any geographical unit are connected, including nature, human beings and cities. Biodiversity reflects the inter-connectivity of all life on Earth. Green space in the urban landscape helps in

overcoming this fundamental environmental problem, further enabling and easing conservation efforts from local and regional authorities and others.

Biodiversity and healthy ecosystems within city limits support the quality of life of citizens, facilitate municipal services and aid in restoring a positive and integrated perception of the environment to citizens.



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This document is part of a series of factsheets that are intended to provide guidance and information on biodiversity management to decision-makers at the local and regional level. For more detailed information on how local and regional authorities have contributed to stopping biodiversity loss, please visit our web site www.countdown2010.net/lara or contact us directly. All factsheets can be downloaded from www.countdown2010.net/lara.

Facts & Figures

- Habitat loss alone is projected to cause a species decline by 10-15%. Pollution, climate change, invasive species and other environmental degradation will cause further decline.
- In the last several decades an estimated 35% of mangroves and 20% of coral reefs have been lost.

Urban biodiversity ...

is biological diversity of urban areas. It is heavily influenced by the built environment and the economic, social and cultural dynamics of these densely populated places.

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