



A new relationship between city and wilderness. A case for wilder urban nature

„No tract of land is too small for the wilderness idea.“

(Aldo Leopold)

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Supported by:



Federal Ministry for the
Environment, Nature Conservation,
Building and Nuclear Safety

1 Wild Cities

More than 50% of today's world population live in cities; in Germany, this is true for as many as around three-quarters of the population. Consequently, most people perceive nature from an urban perspective and get to know, and learn to appreciate, nature in urban green spaces; however these green spaces are created and cultivated by humans according to their own standards and ideas and often have little to do with what happens when one leaves the design to nature itself.

In the "urban age", a new relationship between city and nature is a key challenge for nature conservation

and for the future of wilderness, as experiencing urban wild areas can help increase the readiness to protect wilderness outside cities (Trzyna, 2005). Making wild nature available and providing a tangible experience of it in cities is not merely a measure for the sake of biodiversity protection. It is first and foremost a measure to enable city dwellers to experience nature in all its facets and thus to raise awareness for nature conservation. Experiencing wild nature in the city does not require time-consuming travel, and it also prevents the risk of disrupting vulnerable native natural areas such as the core areas of national parks.

Aldo Leopold, a wilderness pioneer, was convinced that:

"One of the symptoms of immaturity in our concept of recreational values is the assumption, frequent among administrators, that a small park or forest has no place for wilderness. No tract of land is too small for the wilderness idea. It can, and perhaps should, flavour the recreational scheme for any woodlot or backyard."

(Leopold, 1942, p. 24-25)



The Ruhr River in the city of Arnsberg, Germany, after its restoration.



Inconspicuous wild urban nature: spontaneous vegetation between railway lines.

1.1 The definition of wilderness and its urban forms

Can “urban wilderness” indeed be regarded as wilderness, and how do both terms relate to each other? IUCN defines a wilderness area (IUCN category Ib) as follows:

Protected areas that are usually large unmodified or slightly modified areas, retaining their natural character and influence (including intact predator-prey systems), without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.

The German National Biodiversity Strategy (NBS) (BMU, 2007) has set goals to develop wilderness in Germany. For the purposes of the NBS, wilderness areas are

“undissected, unused areas of sufficient size, intended to permanently ensure natural processes to unfold undisturbed by human influences.”

(Finck et al., 2013, p. 343)

According to these definitions, “urban wilderness” can hardly be understood as a wilderness area, as natural processes do not unfold uninfluenced by human beings and since the areas will almost never be undissected areas of sufficient size. And yet, even urban nature can have wilderness-like properties, if it has dynamism of its own and natural development processes are deliberately provided for. Urban areas suitable for such natural succession processes include city forests, riverbanks, and other remnants of the original pre-urban natural landscape. Nature is also often able to freely develop undisturbed on urban brownfields and in gaps between buildings for as long as their subsequent use remains unsettled or investors have not yet come forward. One of the objectives of the NBS is to deeply enshrine the importance of biological diversity in the collective consciousness by means of environmental education. Urban wilderness areas locations for extracurricular learning can significantly contribute to this objective. Recognising the distinct differences between true wilderness and its urban variation, this text will from now on refer to the urban kind as “urban wild nature” or “urban wildness”.

The following table contrasts the terms “wilderness” according to the NBS and “urban wildness” according to Gödde (2009) and Kowarik (1992, 2011) and compares the main characteristics of both categories as well as their different weighting in relation to each other:

Comparison between wilderness and urban wildness

Criteria	Wilderness	Urban wildness
Size	Sufficiently large	Often rather small
Fragmentation	Undissected, not fragmented	Often fragmented
Intensity of maintenance	Free of maintenance	(preferably) no maintenance, but usually strongly influenced by adjacent surroundings
Natural processes	Natural processes can occur, no human influence	Natural processes can only partially occur, e.g. spontaneous vegetation/ natural succession
Relevance for biodiversity	Wilderness areas are of capital importance for biodiversity protection	Considering the continuing biodiversity loss in cultural landscapes around many (European) cities, urban wildness is indeed significant for biodiversity protection
Biotope connectivity	Wilderness areas are important components in the large-scale network of ecologically valuable habitats	Urban wildness should complement habitat networks connecting ecologically valuable habitats.
Relevance for environmental education	Important for environmental education, but often situated in remote and thinly populated areas	Important for environmental education: Situated within agglomerations, it offers the opportunity to experience nature without the need for travelling.
Habitat type	Wilderness development areas, e.g. old-growth forests, rivers and flood plains	Urban wildness development areas, e.g. relicts of old-growth forests and river beds ("Nature of the first kind", see below)
Human impact	Largely untouched nature, but also formerly used and strongly modified areas such as abandoned military training grounds (e.g. "Nature of the fourth kind", see below)	Wildness indevelopment, also on formerly intensely used and strongly modified areas such as brown fields ("Nature of the fourth kind" or "urban-industrial areas", see below)

Table 1: A comparison between wilderness and urban wildness (from a European perspective). The stronger the yellow highlight, the more important the characteristic of this category is as compared to the corresponding characteristic of the other category (for habitats, only similarities are represented; weighting does not make sense in this case, therefore, there is no coloured highlight)

1.2 Courage for more wildness in cities

Wild nature often already exists in urban areas. It often goes unnoticed but also frequently is rejected due to its alleged neglect. The close-meshed, cross-linked diversity of habitats within urban areas constitutes their importance for nature conservation as well as for creating and maintaining a high level of urban biodiversity (Kowarik, 2012). It is therefore essential to establish wild nature as an integral part of the urban natural infrastructure and to secure the acceptance and appreciation by the population at the same time.

For this purpose, it is worthwhile to introduce a systematic categorisation of urban nature, such as the concept of the "Four Natures" by Prof. Dr. Ingo Kowarik, professor for urban ecology at Berlin Technical University and honorary commissioner for nature conservation of the state of Berlin (Kowarik, 1992 & 2012). The concept describes four "types of nature", which each exhibit good conditions for a natural and diverse appearance and thus present favourable prerequisites for the survival of many species. All four types of nature can be found in a city, and all four of them should be accessible for the citizens.

The concept distinguishes between the following four types of nature:

I. "Nature of the first kind" – remnants of the original natural landscape

is defined as the remains of the original natural landscape, meaning the "old wilderness" which has been spared development to this day. For the most part, these are former natural habitats such as woods and wetlands, but also floodplains and riverbanks. Often, but not always, these areas can be found on the outskirts of cities. Their economic use is mostly limited and recreational use is predominant. The natural environment is often reshaped by urban environmental influences (straightening, eutrophication, deposition of substances, etc.), but restoration is often possible (e.g. reactivating floodplains along rivers, renaturalising channelled water courses, etc.). As a result, the forces of nature and its changeability are made visible and tangible in the middle of the city. This illustrates the importance of these areas for recreation and the experience of nature within the city. Examples for natural remnants in German cities see below:

II. "Nature of the second kind" – relics of the cultivated landscape:

this refers to agricultural areas which have been present even in major cities to this day. The arable land, meadows and pastures are often interesting for housing or infrastructure development and are therefore frequently subject to considerable urban pressure. Where these areas are preserved, they are suitable for maintaining and creating near-natural landscape features such as mixed orchards and flower strips, as well as extensive mowing or grazing regimes. Smaller succession areas where natural processes can be presented and communicated are also conceivable. These areas are less suitable for large-scale wilderness development, as it would not be possible to preserve the character of a "cultivated landscape".

III. "Nature of the third kind" – landscaped green areas:

this type of nature is often the predominant component of the urban green infrastructure: it refers to landscaped nature at all levels of scale, including private gardens and allotment gardens, roadside plant-

Nature of the first kind

Natural remnants in the city of Hannover

The Eilenriede city forest is located in the centre of Hannover. The 600-hectare forest area was formerly part of a large, trans-regional forest and has survived all urban expansion until today. Natural development is part of the management concept: 10 per cent of the forests are designated natural forest areas, deadwood is actively preserved, habitat trees are left untouched for long periods of time. Important habitats are created by rewetting forest areas which had been previously drained for the production of timber.

River restoration in Arnsberg

The 30 kilometres of the Ruhr river which lie within the urban area of the city of Arnsberg had for the most part been straightened. In several large sections of the river, bank revetments were removed between 2003 and 2013. The banks were lowered and the riverbed was raised. Today, the Ruhr once more flows over wide gravel areas, forms islands and destroys or moves them again and again during each high water period. Fish stocks have increased visibly, and the entire river ecology has changed for the better. At the old location, a new river landscape has emerged which again facilitates natural dynamic processes.



Hannover city forest.



Ruhr river restoration in Arnsberg.

Nature of the fourth kind

Old colliery sites in the Ruhr coal mining region offer fascinating mixtures of old industrial culture and newly reinvaded nature just a few years after the shutdown. Many of these old mines have become tourist attractions. In many other places, railway tracks or whole freight depots have been closed down, and first pioneering nature emerges after only a short period of time. Sometimes such places are not really noticed until years after, such as the Schöneberger Südgelände in Berlin: the former freight depot had been lying waste for decades due to the difficult ownership structure of the trackage in the divided city of Berlin. By the time the Berlin Wall came down, nature had developed here which did indeed approximate wilderness. This does not imply indigenous wilderness, because the area is still dominated by pioneer species such as birch and non-native species such as the black locust (*Robinia pseudoacacia*) (Kowarik & Langer, 2005). And yet, it is natural processes happening. Since 1999 the Schöneberger Südgelände has been preserved as a natural park (Naturpark) and is open to visitors during the day. A system of trails allows visitors to experience the site. The industrial history of the site is still tangible, creating a very special flair: tracks have been left in the ground, a steam locomotive rests in the middle of a forest, and a turntable has been preserved. Art objects create further attractions and foster acceptance.



Abandoned coking plant Hansa in Dortmund, Germany.



Overgrown train track in the natural park of Schöneberger Südgelände, Berlin.

ings, parks, sports fields and large landscape parks. These areas have been and are deliberately created and designed by man. Very old parks or cemeteries with ancient trees are often biodiversity “hotspots” and are therefore important areas for nature conservation in the city.

“Wild nature” can find its way into urban parks in the form of near-natural elements by allowing heavily landscaped zones (e.g. playgrounds, sports grounds, etc.), transitional areas such as lawns, as well as areas left to evolve naturally adjacent to each other. The level of utilisation of the different areas can vary greatly, so even wild areas can be allowed for. Linear near-natural elements such as hedges, watercourses etc. can be created directly adjacent to heavily landscaped zones. Old trees as well as dead wood are an important element as they can create structures which are relevant for both nature conservation and environmental education.

IV. “Nature of the fourth kind” – the urban-industrial nature:

the urban-industrial nature is limited to urban areas and is closely linked to its development: spontaneous emergence of nature on previously built-up areas

or intensively utilised urban-industrial sites such as brown fields, abandoned railroad tracks, on vacant lots, etc. Here, nature reclaims the areas that have been profoundly transformed and then abandoned by man. Kowarik calls the urban-industrial nature “new wildness” because it is mainly natural processes which often create entirely new habitats on the basis of existing resources. There is great potential for wildness - even if it often does not exhibit typical regional characteristics, as the areas are usually dominated by non-native, sometimes even invasive species. Nature 4 is still rarely recognized as being “nature of value” but is rather considered an eyesore or even a “no-go” area. At the same time, this type of nature has become an important part of the natural environment of our cities. Its relevance stems from being a haven for biodiversity, especially the native fauna.

Of course, the biodiversity in “new wildness” areas strongly benefits from the fact that such areas - as long as they have not yet been “discovered” as a recreational area - are exposed to very little interference by visitors. And yet, it is precisely their wildness that has tremendous potential for environmental education, because natural processes and ecological interrelations can be made tangible here without compromising



Guided tour of urban wildness in Berlin.

sensitive native ecosystems. Careful development and smart zoning, both taking into account areas of high and low visitor intensity, facilitate the coexistence of ecological qualities and allow urbanites of all ages to experience nature. Examples for “new wildness” in German Cities see above.

1.3 Public acceptance of urban wilderness

A recent survey in Germany has shown that the population is generally open-minded with regard to wild nature: 42% of the population would welcome more wilderness in Germany, and 65% of the respondents even indicated that the wilder the nature, the more they appreciated it. However, the survey questions referred to nature in outer areas, not to urban nature. In the city, according to experience, wild nature is met with some degree of reluctance, because it is promptly associated with negative developments such as neglect and threat to people’s personal safety. Such areas are often avoided, and they are frequently misused for the illegal waste disposal or as a “dog loo”, which further reinforces the perception of neglect. In Berlin and other cities, experience has shown what is important for the acceptance of such areas: the municipality has to avoid the impression that it has abandoned the site or surrendered it to neglect. Rather, the city has to make visible that the “wilder” appearance is deliberate and under control: information signs and small cues of cautious care as well as regular mowing solely along trail sides are conspicuous clues for visitors. Experience from Berlin shows that providing a path and a bench further promotes the acceptance of a wildness site and its appropriation by the population, especially in a downtown area. Another approach may be to prompt people to “vote with their feet” - meaning to create paths by simply walking them, such as in the context of events or activities. The resulting trails would also present a smaller fragmenting effect for flora and fauna.

One important matter is to raise awareness both among the population and the responsible area managers for the “proper” behaviour with regards to risks and dangers posed by a more natural state of nature. Health and safety issues can be significantly reduced by restricting the access to peripheral areas or sub-areas, e.g. by creating observation facilities.

2 Creating enthusiasm for urban wildness

Europe is dominated by cultural landscapes; this fact makes it particularly difficult for Europeans to get to know, and learn to appreciate, true wilderness and natural areas as an integral part of their continent. Research from Germany shows that urban green spaces are the first and often virtually the only point of contact with natural environments for many city dwellers (for Germany: BMU/BfN, Naturbewusstsein 2009, 37). It is here that urbanites get to know and learn to appreciate nature.

The special challenge lies in convincing urban citizens, who are accustomed to cultivated landscapes, that wilderness does not only have to exist in remote areas; in an “urban” version it can be found in their surroundings in the middle of the city, and it is of great value for recreation. As many people rarely leave the city or even their borough, wild nature, or at least near-natural green spaces, should therefore be accessible in the immediate vicinity of their homes. This facilitates natural experiences in the middle of the city, and in addition improves the quality of life in the neighbourhood.

2.1 Environmental education programmes as an intermediary between man and wild urban nature

Environmental education allows us to inform the public about the value of nature, wilderness and certain species as well as the reasons for nature conservation. In line with the motto “one protects only what one knows”, the urban population must be offered the opportunity to get to know the wild elements of their city. Photo exhibitions such as the open-air exhibition “Wild Wonders of Europe” (www.wild-wonders.com) offer a first point of contact for city inhabitants to get to know the not-so-distant wildness and nature. Near-by urban wildness provides particularly good opportunities to initiate a new relationship between man and nature. Trips, excursions, and other educational activities are very good ways to reach the public and to inform them about the natural aspects of urban wild nature. Some examples from Berlin, Germany, show the wide spectrum of possibilities: the “Long Day of Urban Nature” (www.langertagderstadtnatur.de, in German) is a popular annual event which animates

countless people to explore the outdoors, opening up entirely new perspectives on the supposedly well-known city and whetting people's appetite to further discover urban nature on their own. Nature-related excursions during the "Long Night of the Sciences" (www.langenachtderwissenschaften.de in German) facilitate encounters with the wild inhabitants of the city. Citizens are usually surprised and fascinated when they catch a glimpse of boars, raccoons, foxes and martens. A Citizen Science Programme also exists for studying wildlife in Berlin (www.portal-beee.de) and numerous plant identification courses, guided nature tours, wild herb collection trips and similar learning opportunities are offered throughout the year and are always well attended. The love of – and the longing for – nature is deeply rooted in human beings and can be rekindled by such direct contacts.

2.2 Communication campaigns: tailored to each topic and target group

Communication programmes need to be customised for target groups. With urban nature being such a complex subject, defining the target group is both difficult and important: if only local residents are targeted, then

a certain amount of local knowledge can be taken for granted and "can be played with". If visitors and tourists are also targeted, then the messages would have to be much more general. Similar preliminary considerations have to be made if students, senior citizens, and other groups are to be targeted as well. Therefore, it is strongly advisable to clearly define the target group and to align the communication strategy with this target group.

When carrying out communication and environmental education particularly in multicultural regions, it is crucial to take into account demographic and cultural aspects but also language abilities: communication campaigns which strongly rely on puns and idioms are often barely understood by people from immigrant backgrounds. Wordings must therefore be chosen carefully in multicultural cities. On the other hand, clever puns and idioms can create a whole new and unconventional approach to the topic which can be very valuable: people who initially do not understand the message of such phrases or puns, may inform themselves, and thus get acquainted with the subject.

Such communication campaigns aim at reaching people with different knowledge of, and interest in, nature

Communication campaigns by BioFrankfurt:

BioFrankfurt (www.biofrankfurt.de/gemeinsam-fuer-vielfalt-und-nachhaltigkeit.html in German) is a network of companies, associations, the environmental office and research facilities in Frankfurt (Main), Germany. The network aims at increasing public awareness of the importance of biodiversity, at pooling activities in the region, at intensifying professional exchanges and to promote the city of Frankfurt by creating greater visibility of the public commitment to biodiversity.

The campaign "Banks - stock exchange - biodiversity?", conceived by BioFrankfurt in 2007, promoted the Rhine-Main region as being home to some 1,400 beetle species, 14 bat species, 150 apple varieties and 1,500 plant species. This magnificent diversity was presented in a poster campaign, in commercials and advertisements and was widely disseminated. Several commercials aired on the info screens in underground and metro stations.



Still at home in the Rhine-Main region: The hazel dormouse. Only one of more than 50 mammal species in the Rhine-Main region.

and at making them enthusiastic about nature in their immediate vicinity. For nature lovers, such campaigns can further deepen their appreciation of nature with its ecological and economic values as well as the ecosystem services for cities. People who are less interested in nature are given the chance to deal with this topic.

New media also have the potential to awaken interest in nature. These include geocaching, social media, apps, etc. The “Wild friends” app (www.wild-wonders.com/products_app.asp), for example, offers a fascinating collection of spectacular images with background information, slide shows, and the ability to add favourites and share them via Facebook and Twitter. There are also a few apps to identify different species. The “Berlin Environmental Calendar” (www.umweltkalender-berlin.de in German) is now also available as a mobile version. It lists events with a focus on nature or environment in Berlin, with filters for target groups, topics or by date.

2.3 Information policy for specific projects

A proper information policy is essential for the creation or development of specific areas of urban wild nature. Especially those citizens who are directly affected must be informed at an early stage about the transformation of an area into a wilder or more natural area. Information must also continue throughout the transformation. For specific projects it is advisable, however, to invite citizens to participate beyond the mere transmission of information. A possibility for local residents to participate in the planning process does not only increase the acceptance of the whole project, but also makes use of the local knowledge of the residents. Participation of citizens means to recognise their role as experts for their own environment and to take advantage of this potential for a user-oriented and citizen-oriented urban development.



Exploring urban nature from a boat: guided tour in Berlin.

A well-tried measure to foster acceptance is to present success stories from other cities. On the one hand, positive examples promote the ability to imagine the result and to dispel concerns about aesthetics and usability. On the other hand, it is possible to draw on the experience of projects that have already been implemented: what does it cost, will something like this be accepted by the population, has vandalism occurred, how were safety requirements met? Many uncertainties can be addressed and discussed in advance, using concrete examples. This dispels worries and motivates the activists.

2.4 Promoting acceptance through participation

Lending a hand and practically contributing to the success of an idea is attractive to many people. Appropriate participation opportunities should be offered in the context of the development of urban nature. This is also true with respect to urban wildness. The activities can be mostly on a voluntary basis and represent a connection between communication measures, planning and participation opportunities for citizens. This can be facilitated by nature protection associations or citizen initiatives but can also be organised by the administration.

When it comes to voluntary commitment to do practical conservation work, it should be noted that for less conservation-oriented, and especially younger people, the conservation aspect is rather less prominent than the opportunity for leisure, feeling part of a group, and experiencing physical work. Participation opportunities must offer the chance to become active in nature together with other people and to be part of a group. This social component of the conservation work is tremendously important, especially when it comes to urban nature. Children are not only a special target group, but also wonderful partners for hands-on participation projects - also because they successfully act as multipliers for the rest of their families.

2.5 Dealing with man-animal conflicts

Urbanites are usually quite pleased when encountering wild animals in their city, at least as long as they do not fear any danger to themselves or their property. Especially for children, it often just takes one encounter to awaken their interest in other living beings and their experience that animals do not only live in zoos.

But wildlife in urban areas quickly reaches its limits when such encounters have unpleasant outcomes such as wild boars digging through parks and gardens or crows scattering rubbish. Looking at other countries reveals very different scopes, such as in Mumbai, India, where time and again leopards make their way into the city from bordering conservation areas because stray dogs in cities are easier prey than wildlife in their native habitat.

Education and information about how to behave when encountering wildlife have been proven very useful in many cities. E.g. the city of Berlin informs the public about the resident wildlife on their website (www.stadtentwicklung.berlin.de/forsten/wildtiere/index.shtml in Germany), about their behaviour and the reasons for their presence in the city, as well as possible precautionary measures. Where certain species such as squirrels or nutria are likely to be encountered, relevant information should be provided directly on site, e.g. on information signs. This will enable people to behave prudently and avoid serious conflicts as much as possible.

3 Conclusions

Urban nature generally has a positive impact on the quality of life in a city, but the value and the necessity of urban wildness are often met with particular scepticism. Urban wildness is too readily associated with neglect and disorder. And yet, it is possible to raise public awareness on urban wildness through numerous small measures, in order for the population to associate positive experiences with it.

Relating the terms “wilderness” and “city” is provocative and quite controversial. But their combination presents interesting opportunities. Wild nature can remind people that not everything has to be continued and planned, even in this present day and age: even in the midst of a man-made city, a part of the work can be left to nature. In return one receives attractive spaces to linger, for recreation and learning.



Wildlife reinvading German cities.

Located in urban areas, where the majority of the population lives and where environmental problems are most severe, urban wildness can and should significantly contribute to environmental awareness. In addition, urban wildness serves as a living resource for future generations. For children and adults, these areas provide a wide range of functions - as playgrounds, retreats and experimental fields for personal challenges under natural conditions. This manual can hopefully help clarify how to contribute to nature conservation, the appreciation of nature and to the overall quality of life by creating wild spaces in the heart of cities.

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