

CAVITY. WILDERNESS ACTS BY COLONIZING

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141

CAVITY

FRANCE

From the initial ‘cavity’, the garden of Gilles Clément’s paternal home, with its bed continually thrown up and redesigned by the activity of moles, emerged the first documented exploratory territory of ‘wilderness’, encompassing both plants and animals, which was made available for the explorations of the young Gilles Clément†.

Authors. Following the evolution of the notion of garden towards a professed adherence to the ‘wilderness’ recorded in Gilles Clément’s early writings, some strands of research which have accompanied and intersected its evolution are recalled here. Clément’s work is contextualized within a broad critical reflection that emerged during the same period, around the role and the need to evolve towards an articulated understanding of the relationship between ‘wilderness’, nature, biodiversity, and urban dimension.

Studies and research. The research conducted in France by Atelier parisien d’urbanisme (Apur) under the direction of Jean-Baptiste Vaquin, and published in the volume *Atlas de la nature à Paris*‡, defines the framework of an articulated scenario to which Clément himself contributed with his essay *Du tiers paysage, accueillir la diversité à Paris*, included in the section *À la découverte de la nature à Paris* edited by Jean-Pierre Le Dantec. Alongside this section, the other three – *À la découverte des écosystèmes de Paris*, edited by Jaques Moret; *Inventaires détaillés par espèces*, edited by Olivier Escuder for the flora section and by Patrick Affner and Xavier Japiot for the fauna section – present a vision of the city as a container of ‘wilderness’ and natural biodiversity which emerge through the pockets and cavities of urban space. Among the pioneers of this research type, the figure of Paul Jovet stands out¶. Beginning in the 1940s, his inexhaustible passion as a naturalist and his curiosity for the biodiversity of different forms of life define the uniqueness of his scientific research which developed a focus on the study of urban biodiversity and had a significant influence on the research conducted by Apur. As Henrik Ernstson and Sverker Sörlin▲ recalled, Paul Jovet can be considered the pioneer of urban ecology, ¶ anticipating its subsequent evolutions. Beginning in the 1930s, and throughout the following decade, the botanist explored the interim spaces of Paris, attributing to the urban wild vegetation, mapped between pavement crevices and micro-cavities of the buildings, the distinctive character of a ‘global’ mixture.

At the end of the 1970s, ‘wild’ spaces colonised the European urban scene, through the mobilisation of numerous associations often backed by the technical offices of city councils, with the

goal of disseminating knowledge of spontaneous urban flora and fauna, safeguarding them from unwitting destruction. As John Celecia points out ¹, urban ecology was introduced after the end of the Cold War. Establishing itself as a pioneering research initiative within the United Nations international programme, it defined the paradigmatic components of urban ecosystems, ranging from quantifiable variables to intangible psychosocial aspects. European cities thus became the places of interdisciplinary ecological research aimed at collecting data on urban contexts and their interrelationships with wilderness. These social appropriations of the “urban naturalist knowledge” urging the presence of wild nature in public spaces, to such extent that the city of Berlin activates planning for the conservation of urban wilderness responding to the pressure by its citizens. With reference to these contexts, Celecia emphasises how ecology functions as a global approach to the urban environment rather than as a scientific discipline, unable to escape the political pressure of the 1970s. Wilderness alienation here obtains social status, whereby the ecological mixture of wild urban nature appears more desirable than its segregation, a notion that is widely acknowledged by the urban population. Going back to Clément, in his book *The Planetary Garden* he reminds us that:

the planetary garden is a principle, its gardener the whole of humanity. The proposal is to consider diversity as a guarantee of a future for humanity. It has to be recognized, documented and protected. [...] The important question posed by “The Planetary Garden” can be expressed in this way: is it possible to exploit diversity – having thoroughly recorded and understood it – without destroying it? To go further: can the recording, the understanding of the mechanisms connecting these living beings with one another, but also the exploitation of all or part of these components, be considered as a means of saving diversity? *

Project and Designers. Paul Jovet paved the way for subsequent studies, and in the 1980s a series of authors and designers in France began to explore the potential of contemporary landscape design, intended as the recovery and reworking of existing urban structures towards a reconversion that takes into account the ‘wild dimension’, reinterpreted in the interstitial spaces of disused urban structures. Cases in point are projects like *Le Jardin Savage* (Paris, 2012) by Atelier Le Balto, where the cavities resulting from the vertical compression between buildings act as urban refuges where wilderness can reemerge with outcomes deliberately left unchecked.

Other cavities, produced by exposing the cement struc-

tures of a disused factory, served as the exploratory terrain for Michel Desvigne in the recovery of the landscape on the former site of the Renault factory on the Île Seguin (Paris, 2000). Aimed at temporarily colonizing the empty spaces resulting from the plant’s decommissioning, with a part of the urban renewal project entrusted to Jean Nouvel, the Seguin Island Gardens occupy the inert cavities of the future site of the park, acting as testers for the consolidation of the urban park that will take their place. Conversely, the unrealised Parisian project for the public spaces of the T1-Seine Rive Gauche district, designed by Michel Desvigne and Christine Dalnoky (Paris, 1995), appears on paper as a system of cavities, built with vegetal volumes of topiary art hedges. Supported by an articulate topography, these define sequences of cavities at different levels that are reminiscent of an archaeological excavation site, apt for subsequent colonisation by wild vegetation similar to that of the garden of Villa Aldobrandini in Frascati (IT).

On the other hand, along the riverbanks of Lyon Confluence (FR, 2000-05), the design timing of the planned and extensive urban transformation, has been accompanied by the development of an ‘intermediate wilderness’ temporarily established on the original quay, which was transformed into a sport platform for the citizens. It thus functions during the intervening periods of the scheduled urban transformation, after the principles of the ecological transition, strengthened by the presence of the realized Cultural Centre consolidated around the Musée des Confluences (Lyon, FR 2014). The public area is currently set as the site for the new urban forest, expected to be completed by 2030 with the planting of two thousand new trees.

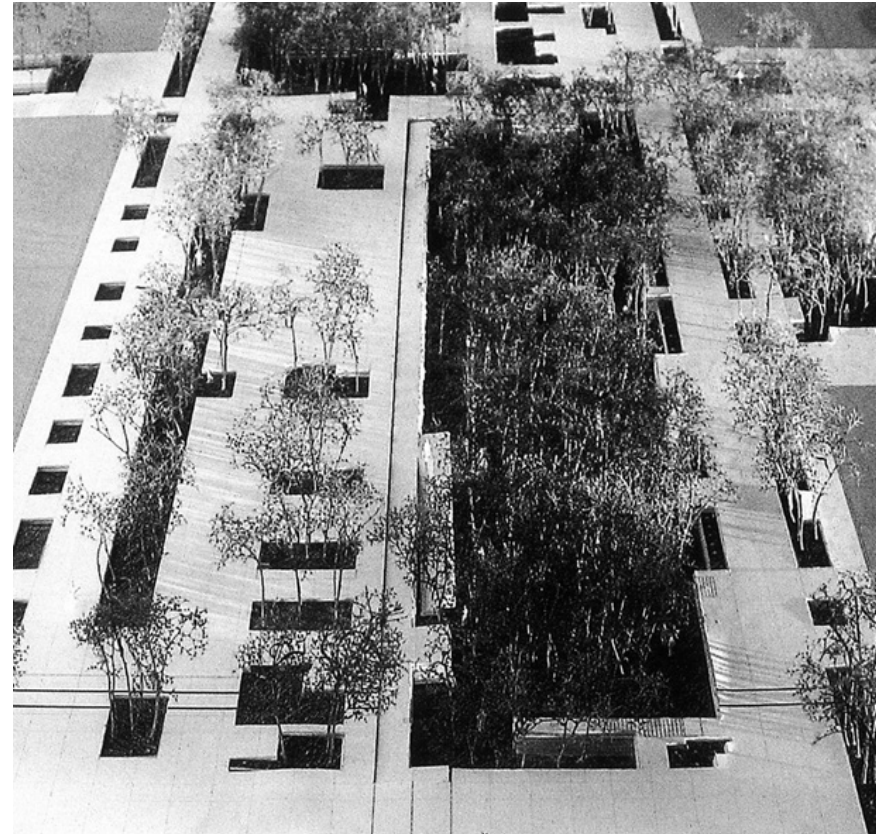
Finally, further ways of interpreting the relationship between ‘cavities and wild nature’ emerge from the most recent experiments and design achievements by landscape architects Mathieu Gontier and François Vadepiéd, founders of the Parisian studio Wagon Landscaping (FR, 2010). In his article *Sol et porosité de la ville* ², Gontier clarifies the studio’s methodological approach as deliberately free from the dogmatization of the discipline, placing instead the ‘role of the hand’, which draws and builds at the same time as a designer and a gardener, at the centre of the landscape-architects’ work.

Underpinned by this philosophy, as the author points out, Wagon Landscaping’s projects often emerge from the marginal places of the city, among hibernated interstitial spaces. It is here that the authors find the essentiality of the elements necessary to feed their projects, based on residual space, wild nature, hidden uses, and creative freedom. As they are maintained without

Michel Desvigne, Christine Dalnoky, Archaeological vestiges reference image for the hedge by topiary main element of the garden.



Michel Desvigne, Cavities inside Seguin island, Boulogne Billancourt, France, 2000-2007.



any claim to absolute truth, but on the basis of tried and tested hands-on experience, cities need to preserve and strengthen a form of porosity even in their densification dynamics, in order to offer the void 'spaces where to breathe'. Following this perspective, the authors themselves have adjusted their observation angle and design practice to propose research, techniques, and experiments in the field as a basis for a renewed and necessary porosity of urban soil underpinning the transformation of the constituted city. The two elements, soil and porosity, appear to the authors as the cornerstones of a more conscious renovation of urban landscapes.

Finally, as Mathieu Gontier states, since 2009 Wagon Landscaping, has developed an interest in 'working with tarmac', a slate that, neglected and corroded, retains between its cracks and micro-cavities dry and well-draining soil suitable for the colonisation of pioneer and 'wandering' plants. The designers, emphasizing the potentialities of poor soils hollowed out by their own dryness, explore their coarse and drained richness to understand, through plants, the possible frugality of the landscape. On the basis that connects porosities and cavities, Gontier posits experiences and points of view that allow us to 'hypothesize networks' of urban spaces, of a natural character, reestablishing the centrality of the relationship with animals, whose presence constitutes an effective 'bioindicator'. They create a new dimension of evolution, which encourages them to work more effectively in the network and in the 'reservation' of spaces within the urban environment.

GERMANY

The pioneering research conducted in France paved the way for the necessarily different but systematic studies carried out by Herbert Sukopp and his research group at the University of Berlin a decade later. The research conducted by Sukopp and his collaborators after WWII was aimed at investigating the influences and alterations induced on spontaneous vegetation within the Berlin urban system, which at the time was anthropically and biologically closed. In this context, Sukopp and his team were able to delve into the changing aspects of an 'altered' wild nature due to the impact of WWII on natural systems. These studies allowed him to investigate the dynamics underlying the adaptation and different evolution of new plant species in the territories polluted as a result of bombings outside the urban agglomerations of the divided city of Berlin, which significantly altered the landscape and the physical and mechanical structure of the soil.

Authors. As Sukopp writes in his article *L'ambiente urbano in Frontiere della vita* (1999):

man-made environments include a wide variety of habitats, organisms and communities. The alteration of soil, climate and water conditions affects the distribution of animal and plant species in urban areas. These are heterogeneous areas, characterised by different structures of settlement, land use and habitats which, taken together, generate specific ecological conditions. Generally, the intensity of the anthropogenic impact increases from the periphery to the centre. Historically, the species introduced by humans either directly or indirectly have begun to spread in urban areas, where they are found more frequently. With the increase in the size of urban centres, trade and traffic in and out of the city also increased and, consequently, so did the number of exotic plant species. Urban areas often comprise a much greater variety of species than suburban areas. The close relationship between the urban environment and the presence of certain species allows the latter to be used as bioindicators of specific environmental factors.

Studies and research. Marcus Owens pointed out in his thesis how some determining factors, such as the work of the Berlin School of Urban Ecology directed by Herbert Sukopp, the start of the West-Tangent Ostpolitik, and the process of normalisation of relations with East Germany associated with the control of nuclear production, fostered a renewed environmentalism supported by Willy Brandt in the electoral campaign of 1969 and lead to the signing of the 1971 formal recognition agreement whereby the DDR and the FRG recognized each other as sovereign states. Temporarily freezing the construction of the Berlin Wall, the agreement also enabled the start of trade negotiations in the still divided city, allowing projects for the construction of mobility infrastructures and urban planning, provided for in the New General Plan of West Berlin, to proceed. The operation of transposing motorway mobility inside the city, crossing the dense working-class districts of Schöneberg, was the fuse that triggered the city's environmental activism in defense of natural spaces and of the participation of local communities in decision-making processes. If in the early stages of this campaign protest actions supported by the situationist influence of Berlin's counterculture prevailed, as Owens recalls, the ecological orientation of conservationist groups, as well as the reorganisation of the university system were decisive in energizing the movements supporting 'urban reappropriation' of the natural spaces in the city. Starting in the mid-1950s, ecological

observation areas were established in the city of Berlin, where professors of the Technical University, like Sukopp, began to talk about plant communities, understood as ‘urban biotopes’, rather than as individual plant species[†]. An approach that led Sukopp and Kohler to criticise, in 1964, the destruction of unique communities of vegetation, proposing the limitation of recreational access to the Havel River, which crosses the western portion of the city of Berlin and flows into Havelberg in Saxony. It is here that, in 1969, Sukopp tested the research programme on the value of wilderness in the urban dimension which he had launched at the Department of Agriculture of the TU-Berlin in 1968. As the city eventually became the focus in the study of the wilderness, Sukopp investigated the variations in the biosphere in the metropolis for twenty years. When the Department was dissolved in 1970, it was finally stripped of its ‘heretical wild and ecological components’, replaced by the normalised disciplines of landscape and environmental planning. However, the change did not affect the urban ecology laboratory directed by Sukopp, who carried on teaching ‘on the field’ in Berlin and providing students with the keys to mobilise ecological knowledge within urban policy. Finally, in 1973, the Institute of Ecology was created at the TU-Berlin, in which institutions and departments coordinated field research. Belonging to the Department of Landscape Development, the institute gathered many of Sukopp’s students, whose academic background was in planning rather than ecological studies. Launched in 1974, in the course of the decade, the Institute for Urban and Regional Planning provided technical expertise for the public sector, focusing on urban environmental issues.

The attention to wilderness and the permutations of its nature found a further and interesting geographical reflection in the perhaps little known German experience. As Henrik Ernstson, researcher at the University of Manchester, recalls, in *Urban Plants and Colonial Durabilities*:

The now taken-for-granted version of this history, is one where modern urban ecology emerged in West Berlin in the 1950s around Herbert Sukopp, or possibly before with Paul Jovet in the 1930s Paris. It then exploded and expanded rapidly in the late 1990s in the big cities of USA and Europe, where it became couched in the widely ambitious but quite amorphous “complex systems” body of theory, to then strive to consolidate as that global, even planetary knowledge project for urban sustainability that urban ecology represents today.[†]

Ernstson underlines the “lack of knowledge of how colonial

and imperial forms of science influenced urban botany through how it became constituted within the expanding European powers, settler colonial societies, and racial capitalism”[†], in some ways undermining the current elusiveness and indomitable nature of wilderness.

Projects and designers. In this context, the figure and work of Peter Latz are essential, admirably traced by Marc Treib and Karl Ganser[†] in their introduction – titled *An Industrial Sublime* – to Latz’s monograph *RUST RED: Landscape Park Duisburg-Nord* in Germany. Carl Ganser emphasizes how the author had written this book on ‘his park’, 25 years after the completion of the project. Latz waited so long in order to ascertain the impact that his strategy of building a public park on industrial ruins would have. In this publication, the author and landscape architect present an interesting review of the design of the park, created in Duisburg in 1999 and recently reinterpreted through the introduction of a contemporary wildness[†]. Wild vegetation now envelops a large part of the original meal structures, skirting the edges of the park towards a structured urban form of the city, where an unprecedented buffer zone-like area has been established: cavities created by broken and piled up cement rubble filled with spontaneous plants, old tracks partially transformed into pathways, dips in the land that have become wetlands coexist with it, establishing a ‘wild and urban dimension’. In many ways, similar to the experiments conducted by Herbert Sukopp in Berlin during the Cold War years, it pursues, holds back, and colonises the remnants of the monumental infrastructures standing on its path; infrastructures which often become the supports for the colonization of wild spontaneous vegetation. On these notes, Marc Treib[†] finally underlines how the winning project of Latz + Partner was radical in its idea of transforming, through conservation, the remaining material, as well as of preserving the traces of its industrial use, thus retaining its layout. Latz’s idea “did not entail changing these characteristics, but the context, incorporating it into a new phase of the park.” Landscape Park Duisburg-Nord is not a beautiful park in the common sense of the term, with no concessions to the image of public space: it is a deliberately harsh landscape that lacks the customary urban layout, a vast wasteland dotted with the concrete ruins of the former factories proudly emerging from the vegetation. Indeed, the park did not accept the tending of gardeners for long, and would evolve, as Treib hypothesised, into further abandonment which shares with the previous one the progressive colonisation of wilderness. Explicit in wanting to declare its current freedom from the ‘moral yoke’ of industrial pollution of land and water, in

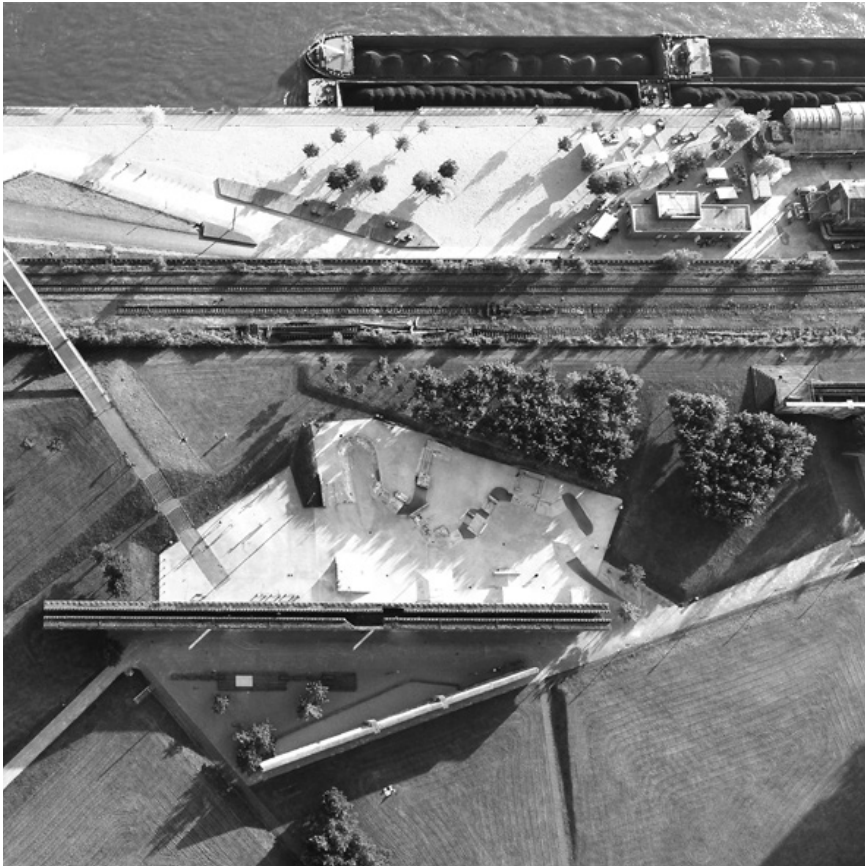
Peter Latz, Rust Red, Emsher Park Duisburg, Germany, 1990-2002.



Peter Latz, Rust Red, Emsher Park Duisburg, Germany, 1990-2002.



OMA/Rem Koolhaas, Zollverein Industrial park, Duisburg, Germany, 2010.



AgenceTer/Henri Bava, Zollverein Industrial park, Duisburg, Germany, 2003.



reunified Germany wild nature can now recover its spaces. The material, social, and ecological complexity of this project, and its ability to reorganise itself over time, have therefore built the interpretative and operational conditions for similar and further operations launched in Germany and subsequently in Europe, accepting that they, too, transformed in public parks, follow its direction, clearly traced between authorship and wildness, and, in the long run, its consumption. Finally, as underlined by Marc Treib and Karl Ganser in their introduction, the pioneering project by Latz + Partners for the conversion of the site occupied by a former Thyssen factory into a public park has become, since its completion in 1999, an essential model for operations in similar contexts. It was the starting point of a series of industrial reconversions that have taken their cue from this emblematic case. Among them the project for the recovery of the site of the Zollverein Coal Mine Industrial Complex in Essen, Germany, now a UNESCO World Heritage Site, with the masterplan to devise a contemporary use for the decommissioned site and the war artifacts of Zollverein entrusted respectively to the OMA/Rem Koolhaas (NL, 2002) and AgenceTer/Henri Bava (DE, 2003) studios.

These projects, which often share similar patterns resulting from the impact of the 20th-century wars, are built on soils, traces and ‘contaminated wild natures’ that have been reclaimed, and inevitably carry with them structures and layers in the metal filigree of which, often made of dismissed railway tracks, lies the memory of the Second World War. On these plots, thick, wild vegetation, no longer originating in the 20th century, marks its presence. These intersecting steel traces – tracks no longer – form cavities where the wilderness still lurks, and which are highlighted in the Landscape Park am Gleisdreieck project by LOIDL studio in Berlin (DE, 2013). In their project, the authors often desert the vestiges of the old 20th-century tracks to venture into contemporary arboreal and shrub forests. As Laura Veronese remarks, here:

not only emerges the ambitious attempt to make one of the last extensive areas of open waste ground in the heart of the city permeable and crossable, but also to preserve and include the wild nature that has developed within it over years of neglect”. In this sense, the conversion of this area into a park plays a key role in the system of open spaces in Berlin: to all purposes, its construction marks the completion of the north-south ecological corridor. The *Bahnbrache*, that is, the vast abandoned infrastructural areas that have strongly characterised Berlin’s landscape, helping to define

the identifying images of the city itself, acting as a prerequisite on which to base reflections to produce public open spaces for the contemporary city. ☞ ¶

Finally, for the vast cavity produced by the Allied bombings on the site of the former Gestapo headquarters in Berlin, the competition project Topography of Terror by Prominsky and Woelk (DE, 2005-6), which has reached the second phase, does not set any purposes but responds to the exploded topography as it is, in the impossibility of repair. In this place, according to the authors, maintenance remains the key to its interpretation. Unusually, to the monument of terror it opposes a maintenance programme, reacting through a succession of seasonal actions over time, which consist of tilling and sowing the soil to bring it closer to its luxuriant stage. Aimed at encouraging reflection on the effectiveness of the role of the landscape, the project, albeit complex, is pure and direct, producing a poetic landscape experience without manipulating emotions.

NEW YORK

Shifting our focus to wild urban nature experiences overseas, in the 1970s in New York, the Critical Gardening movement mainly acted against urban decay in the Manhattan peninsula. Inspired by the charismatic figure of Liz Christy, who founded the Guerrillas Gardens groups in 1973, the movement’s philosophy is not far from the contemporary Berlin culture, between situationism and wilderness. Beginning in 1974, Christy involved groups of citizens in the clearing and planting of vacant lots in central Manhattan which were thereby transformed into urban and vegetable gardens. The first recognized community garden created by the group was renamed after her death to *Liz Christy Bowery Houston Garden* and was awarded the first Urban Forestry prize of the American Forestry Association.

Authors. As Michela Pasquali points out in the introduction of the book *I giardini di Manhattan, storia di guerrilla gardens* ☞ ¶:

There are gardens as large as entire blocks, or as small as a flowerbed, which are created thanks to the initiative of groups or individual citizens, driven by the desire and the need to revive derelict areas of the metropolis that are neglected by current interests and left in a state of disrepair. In a small neighbourhood of Manhattan called Loisaída, these spontaneous gardens are numerous and stand out for their typological variety, multiple inventive solutions, and expressive complexity. An extraordinary example of hidden and new urban greenery, they could be described as either indigenous or local, ethnic, exotic, but above all

precarious, marginal, anonymous, vernacular. Precarious because of their uncertain duration, they change and evolve over time, the product of 'bricoleurs' who acts by improvising and without the adequate means and knowledge. Alien to mainstream culture, they create gardens by colonising intermediate or interstitial urban spaces, terrains vagues or vacant lots, appropriating no-man's lands, similarly to squatters occupying empty buildings or the homeless building their shacks. ∞ ∞

Studies and research. Matthew Gandy, in his article *Marginalia: Aesthetics, Ecology and Urban Wasteland* (2013), quoting *City of Weeds* by Richard Mabey on the spontaneous exuberance of urban wilderness, inspired by the memory of the landscapes of the deindustrialization of London in the early 1970s, underlines that "it is not the parks but the tracks of the railway sidings that are thick with flowers" ∞ ∞. As he writes, "[w]astelands are a characteristic feature of many urban and industrial landscapes. Although the term wasteland has become widely subsumed within various utilitarian discourses concerning the redevelopment of ostensibly empty or unproductive spaces, the idea encompasses a multiplicity of meanings, material origins, and ecological characteristics" ∞ ∞, avoiding, at the same time, a narrow scientific approach, or a neo-romantic attachment to wild nature, where the distinctive aspect of urban ecological dynamics is characterised by transient site disturbances, which traditionally have formed the focus of cultural and scientific exploration of urban space. These marginal spaces are in fact characterised by the presence of 'pioneer species', instrumental to the colonisation of new substrates, capable of generating sudden changes in the appearance of urban landscapes. In this sense, the city includes a network of cavities that vary in substrate, appearance, time, and other factors. Linear spaces such as roadsides or railway embankments can form 'eco-ducts', capable of connecting populations of vulnerable species, which play the role of dispersers of new species, in order to spread the seeds within the radial geography of the city ∞ ∞. Finally, returning to the questions posed by the 'new' wild urban soils, these can be considered as radically perturbative, Gandy argues, because they upset the 'familiar' terrain of cultural landscapes, designed spaces, and the organisational logic of modernity.

Projects and designers. Finally, two projects carried out in New York interpret the theme of the urban cavity from opposite perspectives, differing widely in terms of theoretical and social assumptions. The first emerged spontaneously in the *Loisaida* neighbourhood in Manhattan, where the resident multi-ethnic

community organized, among the amazing vertical walls of skyscrapers crossed by colonies of urban ruderal vegetation, its own cavities. Assumed as 'neighborhood cavities' and social spaces, left to their natural evolution over time in the tangle of different identities and wild natures, it is here that the community of the *Loisaida* neighborhood has built its own informal ethnic universe.

On the opposite end of the spectrum is the prestigious New York High Line project by Diller Scofidio + Renfro, and James Corner, involving the conversion of a disused rail line. The High Line, a new elevated urban park along the disused section of the West Side Line, occupies the western side of Manhattan. Here, listening to the numerous protests of citizens, the interpretative key of the transformation, as Gandy writes, consists in the admirable reinterpretation of the project of wild nature, created by the landscape architect Piet Oudolf. Heeding the many dissenting voices, he was able to interpret the transition of the High Line from an abandoned transport infrastructure, where spontaneous vegetation had dominated over time, to an urban space, rereading through the project – a rearrangement of wild nature, nestled between the railway sleepers that have become a public route – the continuity of a place that can no longer be interpreted as an autonomous ecological device.

The presence of a *wasteland aesthetic* shows that spaces that may appear superficially similar, even in biotic terms, might nonetheless owe their existence to markedly different processes. The newly opened High Line [...] has re-created [...] a distinctive kind of ecological simulacrum of what occurred on the derelict structure before its extensive landscaping. ∞ ∞

Diller Scofidio + Renfro, Field Operations, Piet Oudolf, Noel Kinsbury,
New York High Line, 2019.



159

✦ G. Clément, *Il Giardinere planetario*, 22 Publishing, Milano 2008, or. ed. L'oeil Neuf éditions, Paris 2004, pp. 14-15.

∞ AA.VV., *Atlas de la nature à Paris*, Le Passage, Paris 2006.

↓ Paul Jovet, Doctor in Natural Sciences, Research director for the *Center for Floristics* since 1978, and for the *Laboratory of Phanerogams*, *National Museum of Natural History*, Paris (1990).

^ H. Ernstson, S. Sörlin (eds.), *Grounding Urban Natures: Histories and Futures of Urban Ecologies*, The MIT Press, Cambridge, Mass.; London 2019, p. 8.

∟ *Ibid.*

E J. Celesia, *Urban ecology: biodiversity and contemporary stakes of inventories*, in "Journal d'agriculture traditionnelle et de botanique appliquée," an. 39, 2, 1997.

* G. Clément, *The Planetary Garden and Other Writings*, trans. S. Morris, University of Pennsylvania Press, Philadelphia 2015, p. 145, or. ed. D'oeil Neuf éditions, Paris 2004, pp. 14-15.

∥ M. Gontier, *Sol et porosité de la ville*, in M. Frank, M. Pilutti Namer (eds.), *La Convenzione Europea del Paesaggio vent'anni dopo (2000-20)*, Ca' Foscari, Venezia 2017, pp. 311-322.

∩ Herbert Sukopp, Professor emeritus at the Institut für Ökologie Technische Universität Berlin, Germany.

✦∩ M.A. Owens, *Geopolitical Ecologies: Tracing the Shift from Citizen to User at Tempelhof and the Presidio*, University of California, Berkeley Thesis dissertation.

✦✦ H. Ernstson, S. Sörlin, *op. cit.*, p. 8.

✦∞ M.A. Owens, *op. cit.*, pp. 45-46.

✦↓ Mark Owens Doctor of Philosophy in Landscape Architecture and Environmental Planning at University of California, Berkeley.

✦^ *Ibid.*

✦∟ H. Ernstson, *Urban Plants and Colonial Durabilities*, in M. Gandy, S. Jasper (eds.), *The Botanical City*, Jovis, Berlin 2020.

✦E Ivi, pp. 71-81.

✦* Marc Treib, Professor Emeritus of Architecture at the University of California, Berkeley College of Environmental Design; Karl Ganser, Managing director of the International Building Exhibition IBA Emscher Park 1989 to 1999, with the goal of achieving the urban, social and ecological renewal of the industrial region of the Ruhr area.

✦∥ See P. Latz, *Rust Red. Landscape Park Duisburg nord*, Hirmer, Munich 2016, pp. 6-29.

CAVITY

✦∩ Ivi, p. 9.

∞∩ L. Veronese, *Park am Gleisdreieck. integrare la natura selvatica nella dimensione urbana*, in A. Lambertini (ed.), *Urban Beauty! Luoghi prossimi e pratiche di resistenza estetica*, Compositori, Bologna 2013, pp. 178-184.

∞✦ M. Pasquali, *I giardini di Manhattan. Storie di guerrilla gardens*, Boringhieri, Bollati 2008.

∞∞ *Ibid.*

∞↓ M. Gandy, *Marginalia: Aesthetics, Ecology, and Urban Wastelands*, in "Annals of the Association of American Geographers," 1036, 2013, pp. 1301-1316.

∞^ *Ibid.*

∞∟ R. Mabey, *The Story of Outlaw Plants*, Profile Books, London 2010.

∞E M. Gandy, *op. cit.*