FOREST AND ARCHITECTURE. CONTEMPORARY DESIGN APPROACHES FOR PUBLIC SPACES

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FOREST AND ARCHITECTURE

In various declinations, the forest is increasingly present in the designed public spaces of urban environments. Indeed, the field of design is progressively incorporating the forest both as a concept and as a field of action \. There is a growing attention to "urban forests" in architecture and urbanism. The recent "forest aesthetic"

idea represents both a way of integrating the forest into the urban environment and a model for architecture. In relation to environmental concerns and climate change, the forest is also very present in the public discourse and in strategies at European, national and local level (e.g. protect existing forests and/or tree planting: EU Green Deal, Italian PNRR, Milan's Forestami programme), as well as in global forums (e.g. COP 26, FAO World Forum on Urban Forest). In this chapter, we analyse examples of the forest as a subject in public spaces that enters into a relationship with architecture. While public space (singular) refers to the political sphere of society and to a form of democratic communication, public spaces (plural) include all usable areas where uses and practices express ways of collectively living in the city, regardless of their legal status (whether public or private) M. In this plurality of public spaces, the forest is becoming an increasingly present component. The forest in public spaces can offer new experiences to the users, new opportunities for design, and can contribute to the environment and biodiversity. At the large scale, the forest is no longer a defenceless subject, a mere source of materials to be exploited, but an active subject with its own agency 1. In this context, it is relevant to look at the ways in which the forest and architecture relate to each other in public spaces. This brings to mind Garrett Ekbo, who stated that the aim of landscape architecture is to integrate landscape and architecture. As he pointed out, "we judge architecture and we judge landscape, but we seldom judge their interaction" L. Although this is not the only way to understand landscape architecture, it is a useful lens of observation for our proposed subject. The forest "carries deep cultural significance" and the definitions of urban forest vary between disciplines: from a collection of isolated trees, to the aggregation of wooded groves, to urban forests as an ecosystem *. In this chapter, we use the term "forest" to refer broadly to the reproduction or representation of a forest or a small wood, the placement of a substantial number of trees (in a grid or freely arranged), and the actual forest. How the forest is incorporated into buildings, such as vertical forests, or architecture that emulates woods/trees is not addressed here. This chapter has an explorative character and analyses different design examples by landscape architects, architects, or artists grouped under the following categories: 1) forests in relation to architecture; 2) temporary

forests in dialogue with the urban environment; 3) existing forests intersected by architecture. Reflections and critiques will be elaborated for individual cases in a transversal way. The criteria of investigation are scale, form, time, process, the relationship between the built environment and the "natural" elements, the interaction with people, the contribution to environmental awareness, and the new definitions and names used for describing public spaces.

FORESTS IN RELATION TO ARCHITECTURE

A growing number of contemporary projects for public spaces experiment with the theme of the forest, which interacts with architecture in various ways. The temporal dimension of this interaction is an aspect of interest that will be dealth with the following case studies.

Schiphol Airport. The master plan of Schiphol Airport by West 8 became well-known in the context of landscape urbanism literature as an example of a non-compositional, process-based approach. As Charles Waldheim notes in his influential text "Landscape as Urbanism," "by avoiding intricate compositional designs and precise planting arrangements, [...] the project [is able to respond to future programmatic and political changes in Schiphol's planning" \(\). This project can be read as part of a trend that emphasised processes and that was brought to the forefront by landscape urbanism. It included early examples, such as Bernard Tschumi and OMA's entries for the La Villette competition (1982), West 8's projects of the 1990s, and the entries for the Downsview formative qualities of landscape design interventions were high-the main innovative features of Schiphol Airport project was to envision the planting of trees over time in the unused spaces of the airport, an infrastructural landscape. The project also represents the "conception of the operational airfield as a landscape in its own right" \Re and was a pioneer in this sense. It can also be interpreted as a "forest" that occupied the available spaces provided by the "architecture," the airport. West 8 started collaborating with Schiphol Airport in 1993. Interestingly, only a recent article (2014) written by the principal of the studio, Adrian Geuze, and the senior project manager, Maarten Buijs, contextualises it in the framework of the urban forest debate, in an issue of Scenario Journal entitled "Building the Urban Forest" ▮ . The project considered the airport to be a public space, and proposed a strategy, a "menu," rather than a final design ₩ M, an approach focused on process in line with other influential landscape archi-

tecture projects of the time. West 8 proposed to get rid of vacant, underused, or dirt plots within the large airport site and to plant them with low-maintenance trees, the soft birch, Betula pubescens 1. As West 8 points out, "the project's ecological focus is a way of environmental compensation for the construction process of Schiphol, with the strategic guideline document offering a menu of solutions for whatever work (construction, demolition or rezoning) required" # L. The soft birches were chosen because they can be easily removed and replaced, they are low-maintenance trees, they resist high wind, and, foremost, they do not attract bird populations that would have been a problem for the airport \ ★. Hundreds of thousands were planted. Extensive use of clover to bring nutrients to soil was implemented, and beehives were placed along the roads \ \ \ \ \ \ \ \ . The master plan was represented in an early well-known drawing, showing trees expanding from the airport without a precise border. More detailed drawings of the project show four layers, representing four strategies: 1) runway verges, with well-maintained grass along the planes runways; 2) a green route [constitutes a border, partially contrasting with the freer attitude of the infill strategy]; 3) infill planting; and 4) visual access, open visual corridor ¼ ↓. The collages developed by West 8 were particularly fresh and communicative of the non-compositional infill approach. The infill strategy worked well with the ongoing works at the airport and was implemented by airport operators \hat{x} \mathbb{Y} , a choice by the designers to maintain only loose authorship $\hat{\mathbf{x}}^{\dagger}$, with little control over the final shape. A recent proposal and drawing had been developed by the office to connect the airport to the well-known Amsterdam Bos Park, creating a continuous recreational zone, and thus recognizing the airport's role in providing a critical mass of vegetation $\hat{\mathbf{x}}$.

The infill strategy proposed by West 8 attempts to infiltrate the architecture and the infrastructures of the airport. This approach is the opposite of that adopted by Michel Desvigne Paysagiste (MDP) with Christine Dalnoky for *Place des Bouleaux* in Paris (1989-1992), or by Peter Walker (PWP), in Sky Forest Plaza $\widehat{\times} \downarrow$ in Japan (2000), where it is the architecture that *contains* the "forest," acting as a closed boundary for it $\widehat{\times} h$. These approaches bring to mind the drawings of a strong authorial project, Stop City by Dogma, where the architecture framed a forest and set clear boundaries, an architecture that was both expanding and limiting at the same time $\widehat{\times} 1$.

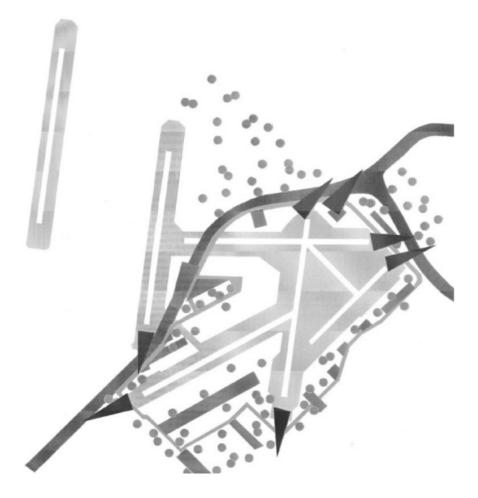
The freely deployed infill strategy by West 8 provided valuable results also at the spatial level. A similar strategy of using trees to occupy underused lots over time was implemented in Michel Desvigne Paysagiste's *Parc aux Angéliques* in Bordeaux, which

Non-compositional planting of birches infiltrating the architecture and infrastructure of Schiphol Airport, The Netherlands, designed by West 8. Courtesy of West 8.



Landscape strategy for the Schiphol Airport, The Netherlands, by West 8.

Courtesy of West 8.



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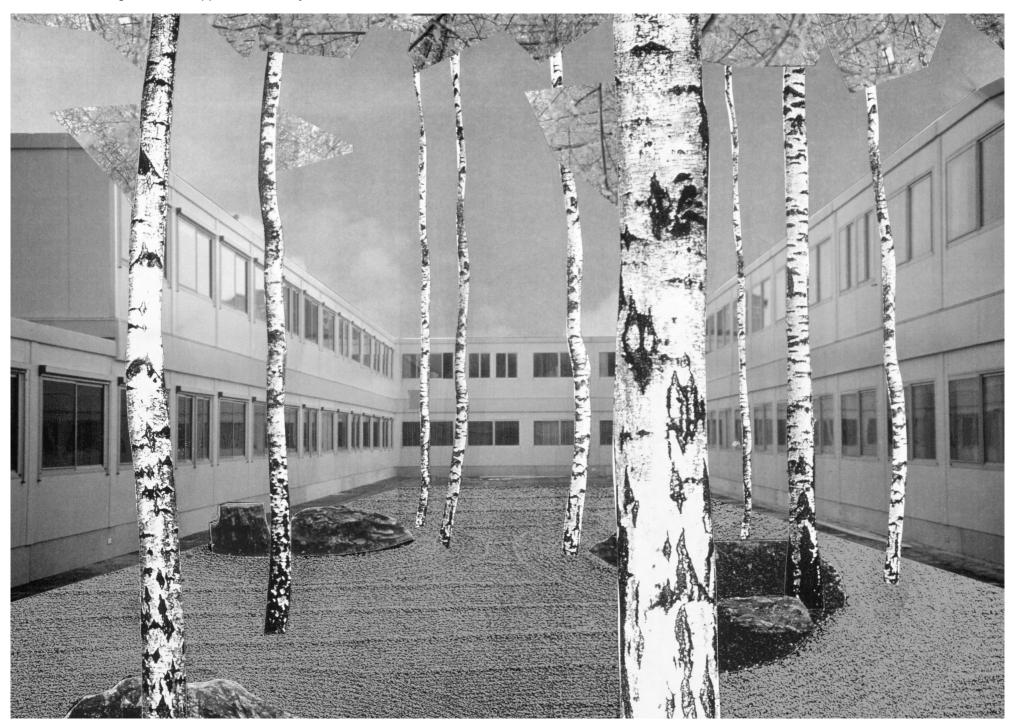
adopted a more compositional attitude, planting rows of trees.

Forêt Demain. Process also plays a central role in the project to regenerate the former Busso industrial area in the heart of Le Pré Saint-Gervais, a city north-east of Paris. The entire area will accommodate a housing development in an already dense neighbourhood lacking in green space. Designed by a multidisciplinary group, which includes the landscape studio Coloco, the project consists of residential buildings with roof gardens on the southern side of the block and the "Forêt Demain," a small forest on the northern side. According to the local municipality, the project will keep 67% of the site surface free (about 5000 square meters) to create an urban forest \hat{x} \text{ L. The project proposes this forest as an element that will have a beneficial effect on the neighbourhood in environmental terms (soil permeabilization, counteracting the urban heat island effect) and in terms of social interactions. Indeed, the designers proposed a project co-designed with the inhabitants of the neighbourhood. In this sense, the forest will host different uses from the collaborative process ** Despite this approach, the former Busso industrial area is currently occupied by local associations that strongly oppose the transformation of the site; nevertheless, the project "Forêt Demain" continues to be discussed with the citizens. The project envisions a process structured in several phases: opening the construction site, launching a call to involve the inhabitants in the asphalt demolition and the preparation and fertilizing of the soil, the creation of a wetland to diversify the ecosystems, and collective tree planting using the Miyawaki method. Eventually the forest will become a precious public space protected and cared for by citizens. It will work at the local scale and in connection with the Parc des Hauteurs $\hat{\mathbf{x}}$, enriching the regional park system.

The forest is meant to play a relevant role in the whole regeneration process of this former industrial site. Indeed, there is a very close relationship with the forest/landscape project and the new buildings. In resonance with the forest, the raw concrete finish of the buildings recalls the natural elements. The definition of the external spaces such as the landings of buildings contribute to the thermic system allowing the air cooled by the vegetation to circulate.

Time Landscape. In 1969, Alan Sonfist conceived an installation in lower Manhattan, which he envisioned as a reconquest of nature in the urban environment. The project is situated in Greenwich Village and it is a forest he planted in 1977, on a property of the Department of Transportation. It aims to recreate wild nature as it would have been observed during the colonization of Manhattan, originally a forest. Gradually, as the city evolved,

Collage of the infill approach. Courtesy of West 8.



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natural streams and trees were obliterated and substituted by imported trees and plants. Thus, according to Sonfist, the city lost touch with its natural origins. The "Time Landscape" project is a bridge to this heritage. This environmental public "sculpture" is called "Time Landscape" because it shows simultaneously the different stages in time of a forest, which will constantly recycle itself under the contemporary environmental conditions. He explains that he transplanted living tree species such as beech, oak and maple and over 200 different plant species native to New York. Besides experiencing the indigenous trees of New York City, "Time Landscape" allowed Sonfist to interact with foxes, deer, snakes, eagles \times \downarrow . The site is unkempt because it aims to be wild. As Sonfist explains, for him the natural environment is not the container-scenario of a work, but is the very theme of the investigation. Despite the originality of the piece, the work is problematic because it implies the existence of a virgin and "innocent" nature before colonization without considering the alterations by the Native Americans to the precolonial forest \(\) \(\) In addition, this installation understands Nature as an element extraneous to Culture \(\frac{\psi}{\psi} \); in fact, it is entirely limited by a fence that prevents it from being accessed.

TEMPORARY FORESTS IN DIALOGUE WITH THE URBAN ENVIRONMENT

Another possible way to engage with forest and public space is through temporary projects and installations, where a reproduction of the forest becomes the main subject. Putting a forest in the heart of a city for a limited time means changing a consolidated landscape and giving users new experiences that may also result in fostering their awareness of environmental issues.

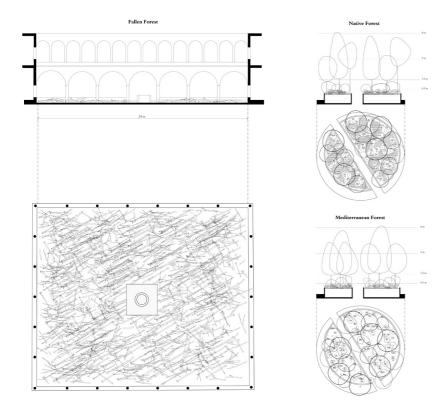
Into the Forest. An interesting example of this kind of project is "Into the forest" developed by Openfabric on the occasion of the first FAO World Forum on Urban Forestry & held from 28 November to 1 December, 2018 (WFUF 2018). This project consists of three temporary installations implemented in the city centre of Mantua, which together with Sabbioneta is listed as a UNESCO World Heritage site. The installations occupied two of the main historical squares of the city and a cloister. The project consisted of two circular installations, two identical pieces of designed urban "furniture" hosting different species, entitled "Mediterranean Forest" and "Native Forest," and a third installation, "Fallen Forest," in the cloister. The "Native Forest" was located in front of the Basilica of S. Andrea by Leon Battista Alberti, thus in dialogue with an architectural masterpiece. This installation sought to reproduce the forest that was

once present in the Po River Valley, likely dominated by Quercus spp. and Carpinus betulus \!\ \proptot \text{. The designers did not intend this} as an argument in favour of native species ↓ ↑ nor did they aim to recall with nostalgia a lost environment, they simply aspired to referring to contextual elements, such as the Bosco Fontana nature reserve in Mantua, and to heritage. The "Mediterranean Forest" was located in Piazza delle Erbe, a few hundred meters from the other installation. It hosted both trees and shrubs present in the Mediterranean evergreen oak woodland. These installations had a round shape which allowed them to occupy the space of the squares with an abstract gesture. The round shape aims to refer to the context; particularly interesting is the reference to the Rotonda di San Lorenzo, a round church located in that square. These installations allow people to sit or lie down, turning their backs to the "forests" and looking at the square and architecture. It was possible to cross the installation, thus observing the "forests" from inside, and to "appreciate the vertical extension of the forest," observing the soil level while walking \ \ \L. Once dismantled, the trees were planted in Mantua \ \ \ \L.

Finally, the third installation directly addressed climate change and recalled the Vaia storm that destroyed large afforested areas in the north-east of Italy. It was created by filling the cloister with trunks leftover from paper production, recalling the images known broadly to the Italian public of the millions of trees destroyed by the Vaia storm. As Openfabric explains, the project aimed to engage both with the academic and the broad public, aiming to stimulate awareness ↓ ★ of the importance of nature in the urban environment and climate change. Having installations in highly visible public spaces of the city parallel to the well-publicized event dedicated to urban forests certainly helped to stimulate reflections by the public. They were unexpected environments, creating new relationships with the context and among themselves and providing new enjoyable places for the public. Given the proximity to historic buildings, the fact that the installations were temporary rather than permanent offered more freedom to the designers.

Forest for Change. Another recent temporary forest in an urban environment is artist Es Devlin's "Forest for Change," an installation for the London Design Biennale 2021 that provided an unusual complementary scenario to the neoclassical facade of Somerset House. Es Devlin's project was inspired by the existing restrictions on the introduction of trees in the historic courtyards of London \[\] \[\] . As a provocation, she proposed a dense and wild reproduction of a forest comprising 400 trees in a regular square shape occupying the whole historical courtyard.

Drawings of the three temporary installations designed by Openfabric in Mantua, Italy. Courtesy of Openfabric. "Native Forest" in Piazza del Mantegna, in front of L. B. Alberti's S. Andrea Church in Mantua. Design by Openfabric. Photograph by Jacopo Gennari Feslikenian. Courtesy of Openfabric.





Created in collaboration with landscape designer Philip Jaffa and Scotscape, the "temporary forest" comprised 27 nursery-grown species with differing canopies, sizes, and shapes, including varieties such as Scots Pine, Silver Birch, and Hazel. They were selected to foster diversity and durability within the city's vegetation after replanting.

In the centre of the forest, the artist put seventeen colourful mirrored pillars that symbolized and aimed to raise awareness of the UN's Global Goals, which are an urgent call for action by all countries in a global partnership. To make the experience even more evocative, the artist created an interactive installation with a special soundtrack composed by Brain Ino: a collection of birdsongs that play throughout the forest. Visitors to the "Forest for Change" were invited to record their own short message about what change they would want to see to help fulfil a Global Goal. The message was added to a music installation that plays in the clearing. The design, sourcing, construction, and dismantling processes for the pavilion were structured to ensure carbon positivity.

Floating Forest and Floating Island. "Floating Forest," a temporary forest at the Darsena in Milan, was created on the occasion of the Milan Design Week from 7 to 12 June, 2022. The installation, designed by Stefano Boeri Interiors and financed by the brand Timberland, is a "green graft" ↓ ¼ in the historical dock of Milan at the intersection of the canals the Naviglio Grande and the Naviglio Pavese. The structure is a floating platform with a reproduction of a forest composed of different plant species and crossed by a wooden path. This forest was open to the public and it created a space for sociality, reproducing a "natural" context and offering new views of the dock. In addition, "Floating forest" can be virtually visited via the website MI. The materials that compose the installation are dry assembled. This technique allows flexibility during the assembly and reassembly phases, as well as the reuse of individual elements once the installation is dismantled. According to the same recycling principle, the plants of the floating forest were donated to the Parco della Vettabbia, a park in the south of Milan.

The case calls to mind the "Floating island" project dating back to 1970 by Robert Smithson, which imagined a moving forest in the Hudson and East Rivers travelling around Manhattan island. The few drawings illustrating this project show a tugboat dragging a barge containing a forest composed of local plants (as well as a weeping willow, not native but very present in Central Park), a rock, and a path. This temporary forest was meant as a displacement of Central Park, a man-made creation from its natural hab-

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itat. M* Never implemented during the artist Robert Smithson's lifetime, "Floating Island" was produced from September 17 to 25, 2005 by Minetta Brook in collaboration with the Whitney Museum of American Art and was designed by Balmori Associates and others.

EXISTING FORESTS INTERSECTED BY ARCHITECTURE

Not only are forests deployed in urban environments, they can also be the sites of and be intersected by architecture. In these cases, the architecture needs to relate to the large scale: that of the forest. The design project can offer the possibility of experiencing nature in new ways, by providing, for instance, unusual points of observation or ways of crossing, as in the project "Cycling through the Trees".

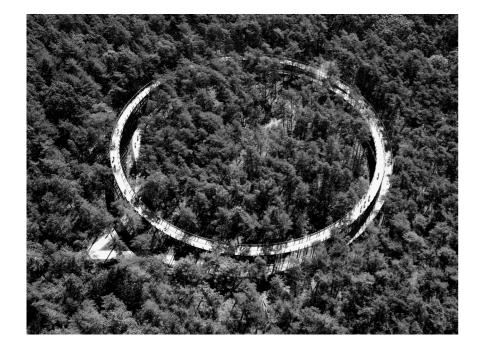
Cycling through the Trees. This project consists of a cycle route designed by BuroLandschap in the Pijnven nature reserve in the city of Hechtel-Eksel, Belgium. This nature reserve is part of Bosland, the largest adventure forest in Flanders, which aims to preserve the quality of the landscape but also to open it to the general public. The Pijnven woods largely consist of coniferous trees, planted at the beginning of the last century to produce wood for the mining industry. As the mines were closed, the trees were never felled. The protection of this forest is important also to the local institutions that are trying to make it healthier and more balanced by adding small, medium-sized, and tall trees. They are using a tailor-made woodland management plan in which smaller indigenous trees at the lower levels of the forest are given more space and light to help them grow $\mathbb{A} \hat{\lambda}$. In this context, the "Cycling through the Trees" project was designed to allow the public to get to know a very recent forest and to learn how to protect it. The project is by Visit Limburg, a provincial department that deals with local tourism strategies that aims to enrich the diffused cycling network of this territory and allow users to experience nature in a different way and from a new perspective. Indeed, the cycling path allows users to experience the forest at different heights by a circular structure of approximately 700 meters long through and between the trees and it rises up to about 10 meters above the ground with a maximum gradient of 4% \(\). The cycle path dialogues with the forest through the materials used and its circular form. The Corten steel pillars holding the elevated cycle path replicate the straight trunks of the forest, attempting to achieve a dialogue with the environment. Despite the attention paid to the place, some trees were cut during the implementation of the project. They were used to construct rest areas and information spots along the trail.

CONCLUSIONS

This chapter has identified three categories of possible relationships between the forest and architecture in public spaces. They are based on an empirical observation of several contemporary design cases involving the forest. The first category, Forests in relation to architecture, has resonance within the discourse of landscape urbanism and the more recent forest urbanism. Yet these two concepts tend to focus on processual aspects rather than formal implications, and tend to consider the larger scale of the urban environment rather than the medium scale of buildings. The other two categories, Temporary forests in dialogue with the urban environment and Forests intersected by architecture, are based on direct observation of existing design trends and could benefit from further investigation from a theoretical perspective. The categories also have connections with the field of Land Art, or environmental art which, generally speaking, intersects with the field of landscape architecture.

Forests in relation to architecture and Temporary forests, have proven particularly fertile as lenses of observation. Indeed, many contemporary projects fit into these categories and also reveal a growing trend of design interventions engaging with the forest. The case studies analysed have identified possible design approaches and could be expanded upon with further research. The cases of *Forests in relation to architecture* showed the possibility of using a strategy of tree planting over time, where process has a central role. In the case of Schiphol, planting was left to the operators, who were thus able to develop the project by themselves, based on the strategic document, according to changing needs. By contrast, in the "Forêt Demain" the planting of the forest over time was proposed as a key strategy to stimulate a collaborative process among the citizens in order to create a new and shared public space (yet the overall development project is currently an object of conflict). In the case of "Time Landscape," the artist let the forest grow in its own time. In terms of formal possibilities, the cases showed forest both infiltrating the architecture and being contained by the architecture. Public forest spaces were both physically enjoyed by the people and only to be seen from without.

In particular, the *Temporary forests* discussed in this chapter are installations that permit the users to have new experiences in the urban space. Some were meant to stimulate environmental awareness with or without direct didactical devices, often organized during specific events. The temporary character of these installations allowed the space to be changed in a freer and more impactful way in historic centres under strict constraints,



The Corten steel pillars of the cycle path inspired by the trees of the forest. © Visit Limburg/L. Daelemans.



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and which are not easy to modify in a permanent way, including installations intended as a provocation regarding the prohibition to plant trees (i.e. "Forest for change"). Another aspect is that temporary installations offer a different perception of the public space or the environment, as in the "Floating Island" envisioned by Robert Smithson, which sought to offer a view of the Manhattan skyline from a piece of Central Park, or vice versa. In most cases, considerable attention has been dedicated to the choice of species as symbols of certain principles and to linking installations to the territory, its flora and history. The life cycle of the *Temporary forests* requires a proposal for the relocation of the trees once the installation is over.

The third category, *Forest intersected by architecture*, shows a sensitivity to the issue of protecting existing woodlands. The case addressed "Cycling through the Trees" represents architecture as a tool for stimulating knowledge of an existing forest and fostering an interest in taking care of it.

The scales of the projects in the three categories proposed by this chapter are different, with the installations being small, Schiphol being medium-large, and forest crossing being at the regional scale. The disciplines involved are also changing and include landscape architecture, art, architecture, urban design, and ecology.

The "forest aesthetic" in public spaces is establishing a new repertoire of design solutions, names and toponyms that include the term "forest" or similar ones, as in the addressed examples: Forêt Domain; Sky Forest Plaza; Place des Bouleaux (Square of the Birches); Into the Forest; Forest for Change; Floating Forest; Cycling through the Trees. This investigation of recent and contemporary public spaces that belong to a growing trend of design that engages with the forest opens up the possibility of alliances between architecture and the forest, and among different disciplines and species, which have the potential to move beyond mere quantitative or greenwashing approaches.

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The two authors have jointly conceived this chapter. Chiara Geroldi authored the sections: "Schiphol Airport" and "Into the forest" while Annarita Lapenna authored the sections: "Forêt Demain," "Forest for Change," "Time Landscape," "Floating Forest and Floating Island," and "Cycling through the trees." The introduction and the conclusion were co-written by both.

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The forum was promoted by FAO, Municipality of Mantua, Politecnico di Milano

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