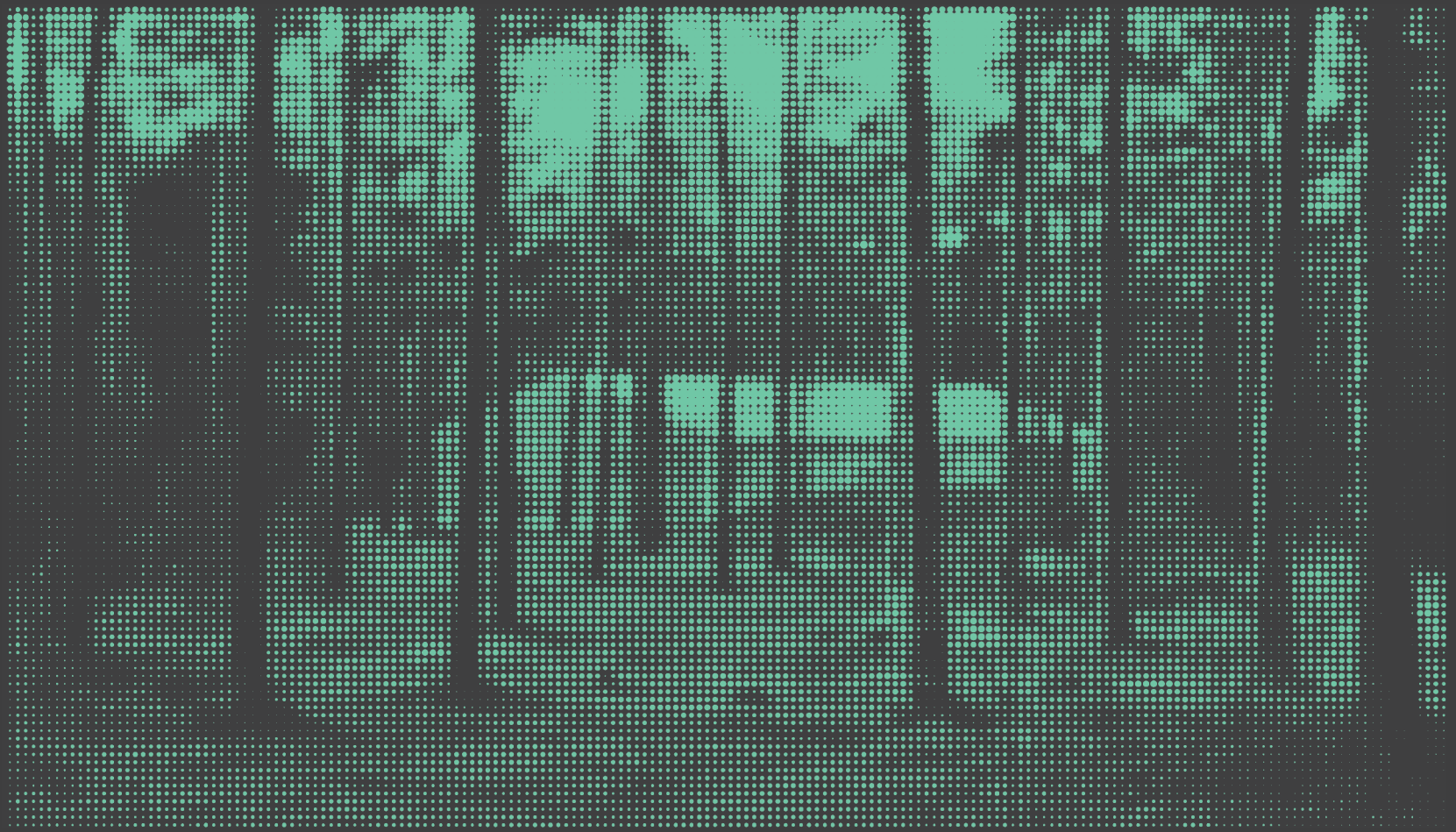

FOREST URBANISM
in the Dispersed Flemish Territory

Wim Wambecq

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Wim Wambecq (Leuven, Belgium, 1984) completed his education as engineering-architect at KU Leuven (2007) with a Master in Urbanism and Spatial Planning (MaUSP, 2009) and European Master of Urbanism (EMU, 2009) at KU Leuven and IUA Venice. From 2009 till 2012 he worked as independent architect for Studio Associato Bernardo Secchi – Paola Viganò after which he joined the Research group of Urbanism and Architecture (RUA-OSA) at KU Leuven where he developed and obtained his PhD in Engineering Science, Architecture with research on Forest Urbanism in Flanders (2019). For this research he was awarded Manuel de Solà-Morales European Award in 2021.

His interests lie on the meeting point between research and design, in which the systemic functioning of the territory forms the key element. He currently teaches urban design and architecture at the Department of Architecture (KU Leuven) with a focus on the impact of climate change. He is also the co-founder of the interdisciplinary architecture, landscape, and urban design office MIDI, based in Lisbon and Brussels.

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Foreword
Bruno De Meulder

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FOREWORD

SEEING THE ~~WOOD~~ / CITY FOR THE TREE. NOTES ON A FOREST URBANISMS MANIFESTO

Bruno De Meulder[1]

Urbanism, simultaneously science of the city and practice that intervenes in and on the city is, as the city itself, in a permanent state of crisis. And, as the urban condition has long since spread to the most remote places on the earth, the crisis of the city intertwines with the multitude of global, social and ecological crises. Decades of neoliberal policies have obscured and often corrupted the view of urbanism. It was dazzled by the apparent successes of strategic urban projects as a new paradigm, that, at the end of the day, shockingly denied the most evident issues of equity and ecological responsibility. So here we are today, at a frightening tipping point of a fundamental ecological and social crisis. As so many in the discipline, the OSA research group – in which the present work of Wim Wambecq was produced – is painstakingly attempting to rethink urbanism in view of the current socio-ecological crises. *Forest urbanisms* is one of the avenues of these explorations of ecological urbanism and grounded as in the best traditions of urbanism, in the concrete and specific environmental and cultural conditions, with an eye on the city in the making here and now, and most importantly, with a clear view on a possible world.

Crises, as much as requiring immediate responses to the burning necessities of the day, are simultaneously forceful incentives for fundamental reorientations. Necessity is the mother of invention, one says. Crises, as Rebecca Solnit (and others proclaim), are inviting windows in the turmoil of the here and the now, opening to new possibilities. Of course, there is also another school of thought that highlights science as basis of any invention; science for them, is the "outgrowth" of pleasurable curiosity. It is hard to resist not thinking about the work presented here as a *proof ad absurdum* bridging these two contradictory views of invention. The design research of Wim Wambecq on forest urbanism is indeed catalyzed by the crisis of the city and urbanism as much as it results from fastidious scientific research – iterating between analysis and design exploration, going back and forward between theoretical and historical insights and critical reflection on one side and projection on the other side. Without doubt, the scientific production published here and fueled by design investigations, is an outgrow of pleasurable intellectual curiosity, where meticulously unfolded concrete realities of the urbanized territory are interwoven with possible worlds through design research.

The proposition of *forest urbanism* developed in this book through the case study of Flanders – where to be honest, the conventional notions of both city and forest must be stretched above the pain threshold – brings together two complementary realms, namely the realm of the forest and of the urban. In their own ways, they are both complex spaces of multiplicity with each hosting a multitude of elements and having a wide variety of meanings. Urbanists have no difficulty in recognizing the complexity of cities. Forests too are complex systems and crucial for carbon sequestration, heat island mitigation, regenerating soils and retaining water, accommodating biodiversity, mitigating pollution and giving space to non-human species. Concerning humans, the impact of (urban) forests on public health is generally acknowledged.

1. Full Professor of Urbanism, KU Leuven. Supervisor of the PhD research.

As well, both cities and forests are propelled by cycles of renewal and regeneration, waves of growth and migration. From the earliest days, forests were a counter-figure of the city. Both figures complement each other. They are also counter-models when it comes to (urban) development: self-regeneration versus continuous self-destruction, (self-)renewable resource versus continuous consumption of production goods. In a certain way, forests stand for witness as timeless ecological archetypes. Finally, both, with no need to remember, are in dire need of radical change. The proposition of *forest urbanism* uncovers what forests as complex spaces of multiplicity offer to the city and vice versa. *Forest urbanism*, above all, is on the outlook for instances where the rhythms of the forest and of the city can be brought into some resonance. It is also about where and how intermediate figures of *forest urbanism* can be recognized or generated to define a new form of urbanity and forestry where the urban and the forest settle with each other.

Of course, the city and forest have long been conceived before as co-present components of the built environment. C. Van Eesteren and J.M de Casseres, to name only two Dutch modernists masters of urbanism, published forest urbanism propositions. But the systems approach used in the study here is rather unique. In that sense, the work of Wim Wambecq echoes the *Preliminaires d'art civiqiue, mis en relation avec le "Cas clinique" de la Belgique* (1916) of Louis Van der Swaelmen, one of the founding fathers of urbanism in Belgium, landscape architect from training and key figure of the League of the Sonian Forest. Like Van der Swaelmen a century ago, the work of Wim Wambecq intertwines ecology and urbanism and it does so analytically, by unfolding an extensive taxonomic work on the nature and history of forests and forms of settling with it in the Belgian context and synthetically by bringing forward intermediate figures of forest urbanism, *machines à penser*, tools to think, settlements for tomorrow. As preliminary research, this work not only initiates and opens up perspectives, but also makes the perspective tangible. It creates an imaginary of forest urbanism.

The *Forest Urbanisms* proposed in what follows, is indeed systemic. There is identification and strengthening of forest figures and landscape morphologies alongside the speculation of new urban typologies. It recognizes the complexity and multiplicity of both city and forest, it registers the cyclic nature of both and above all reminds us of the imageries of *forest urbanism* of the past, while advancing images for a *forest urbanism* of the future.

If the forest can serve as a multifunctional operator to contribute to remediating the ecological crises, then its strategic position in the territory needs to be reassessed, since an adequate, ambitious, and effective forest policy remains absent in the spatial planning of the dispersed Flemish territory.

1. INTRODUCTION

The forest and society

Harrison's *Forests: The Shadow of Civilization*, a historic account on the relation between forest and society through (mainly Italian) literature, illustrates how the forest infiltrates all layers of society, and how the role of the forest changes when society changes.[1] When we attempt to interpret the book from a spatial perspective we can see a compact city growing concentrically away from its center, eating at the forest, but that evolves into what Harrison considers the "province", the place "where the stones have two sides".[2] Harrison seems to try to describe a kind of extended territory that reaches confinement through the province, defined by the edge where a true "*logos*" – the relation with the forest – is maintained. The "two sides of the stones" in the province are thus the cleaned, ordered stones abstracted from the ground and organized into the center (becoming a city), and the original stone itself, embedded in the territory (the natural capital). Could we imagine the dispersed Flemish territory to be a "province" where both the ordered and the natural are present and included in one and the same concept? But then of course, our province is fundamentally different from Harrison's province. Might the message that society linearly moves towards disconnection from the forest by its destruction, need reconsideration when considering a different territory than the compact city and its expanding center? At least the "*logos*", where civilization meets the forest, is extensive in the dispersed Flemish territory.

Urban forestry or forest urbanism?

If we consider the forest to be part of the extended urban condition, then the forest must necessarily be urban as well, as urban forestry is primarily defined by the (urban) location of the forest. Randrup et al add that "As such, the concept deals with both the urban location and the urban function of the forest and the tree. Thus, it is clear that urban forestry is at least as much about urbanity as it is about forestry".[3] In Flanders, the notion of urban forestry is quite recent, namely from the 1990s, the moment of regionalization. The Park Forest Ghent is presented as the flagship of urban forest creation for Flanders.[4] The creation of forest near cities has indeed been one of the main action domains for forest expansion.

The concepts of urban forestry have proven to be very valuable for rereading the dispersed Flemish territory. Urban forestry is defined differently depending on the cultural context, since the urban contexts are also necessarily different. At the least, the addition of the "urban" opens up the field of forestry beyond its borders of the "classic" forest. Urban forestry deals with urban woodlands and forest, but in extension also with individual trees in urban or non-urban landscapes.[5] The broadening of the field is most clearly stated in the book *The Forest and The City. The Cultural Landscape of Urban Woodlands*, by Cecil Konijnendijk.[6] In the chapter on the future of the forest, the new concepts of territory and forest appear: "Although the classic dichotomy of city and landscape in urban regions no longer exists, the image of clear separation of built-up areas and nature still dominates our understanding of spatial

1
Robert Pogue Harrison, *Forests: The Shadow of Civilization*.

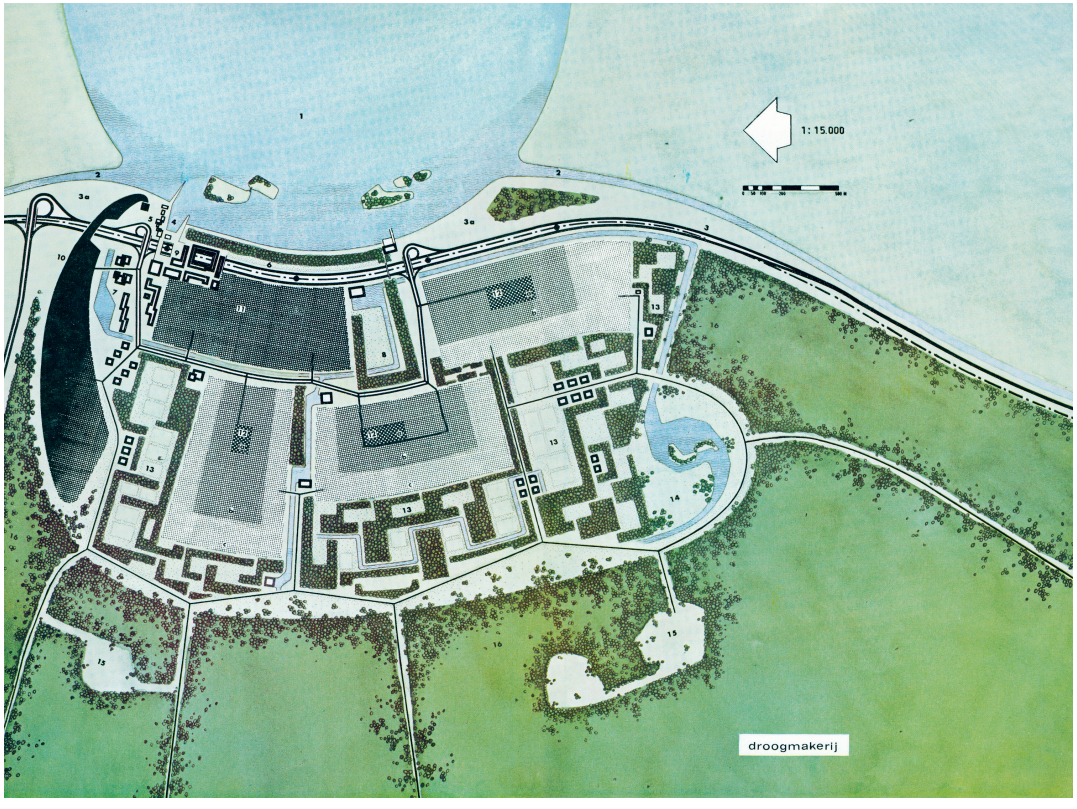
2
Ibidem, p. 246.

3
T. B. Randrup and others, *The Concept of Urban Forestry in Europe*, p. 11.

4
A. Van Herzele, *A Genealogy of Urban Forest Discourse in Flanders*, p. 58.

5
T. B. Randrup and others p. 18.

6
Cecil C. Konijnendijk, *The Forest and the City: The Cultural Landscape of Urban Woodland*.



Project proposals for forest expansion by urbanization in the 1960s, leading to a possible case of forest urbanism, by Van Eesteren.

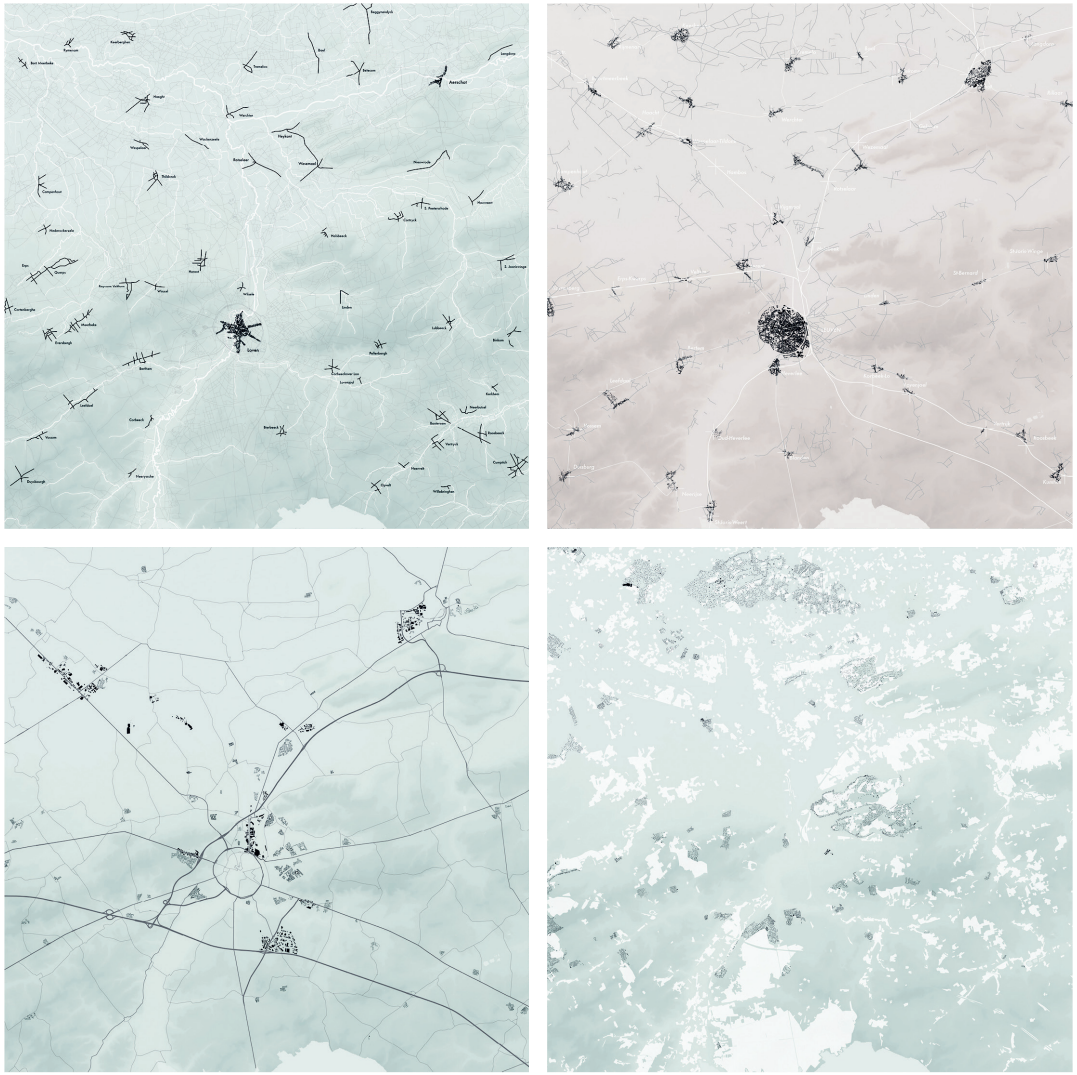
planning. It is therefore important to think beyond traditional boundaries when planning, developing and managing landscapes".[7] Konijnendijk refers to new, large-scale urban landscapes as Milan Metrobosco and Parco nord, Emscher Park and others that show that "[...] city and forest/nature are not just opposites and can join forces in the creation of landscapes with a clear identity of their own".[8] Obviously, the concept of urban forestry has taken foresters and landscape architects to an interdisciplinary working field that is able to integrate more than conventional forestry. In fact, might some of these examples – called urban forests or urban forestry – be examples of a forest urbanism, an urbanism defined by the structural presence of trees and forest?

Looking back at Patrick Geddes' Valley section, it is striking that the forest plays a role in all cross-sections of every physical geography with corresponding natural human activity. A lot of practices happen simultaneously in the forest, making it somehow as multi-functional as the city. In the same reasoning, this implies that only a multi-disciplinary view, similar to the historical urban ecology, can encompass the complexity of this space. Even if city and forest are, through the concepts of functionalism, conventionally different categories, urbanism also has a rich tradition with a central role for the forest-city interaction. Does the Forest of Versailles, designed by André Le Nôtre, not expose a frame of urbanism? In Cornelis van Eesteren's General Extension Plan for Amsterdam, the Amsterdam Forest is an essential part of or, more probably, a necessary addition to the functional city. In his later study *Bos en wonen: illusie of perspectief* he expresses his preference for their simultaneous creation.[9] Of course, there is an abundant number of urbanists and architects like Alvar Aalto, Bruno Taut and Martin Wagner, up to and including more recent planners and designers like Michel Desvignes and, in Belgium, Bas Smets, that attribute a more active role to tree planting and forest in urban ecology, and that consider the forest as a structure wherein urban development is potentially possible. Nevertheless, until now, a coherent body of knowledge on forest urbanism in Flanders does not exist.

7
Ibidem, p. 194.

8
Ibidem, pp. 196-97.

9
Grontmij, *Wonen en bos: illusie of perspectief.*



The genealogy of the urban tissue around Leuven – Rotselaar. The sequence of urbanization logic following water, then rail, then road infrastructure, and the influence of forest on urbanization (mainly post-war allotments).

Flanders is a densely inhabited region. Urbanization is generally dispersed amongst productive fields, forests, nature areas and so on. Flanders' population is expected to increase from 6.5 million today to 7.5 million by 2060.[10] Up to 556 000 more households are expected by 2060. Flanders is predominantly suburban and constituted by a single-family housing stock (80% of the total stock), of which the detached house is the most popular (42% of the single-family houses). This stock is quasi evenly spread over the territory, resulting in a continuous patchwork of ribbon developments and allotments, a dispersed territory.[11]

A functional division was imposed by the land-use plans from the 1970s, based on the Law on Urbanism from 1962, which was *de facto* a model for dispersion.[12] Housing and industrial land-uses were loosely allocated all over the territory, with the intention that an excessive offer would keep the land prices low and democratically accessible. This was highly successful with urban dispersion as a result, up to the point that it is still ongoing today.[13] Still, every day, 6ha of open space is eaten up, which has led to the occupation of one third of the territory by built space, almost half of which is completely impermeable. The Flemish government's ambitions to activate the redevelopment potential of the territory while completely halting additional open space occupation by 2040 have not been successful.[14]

Until 2010, only few studies on the Flemish dispersion existed. *After-sprawl* was one of the first publications to describe the Flemish dispersion and to propose a (imaginary) project for the territory.[15] Afterwards, the need for an alternative project for the Flemish dispersion became more integrated in the urbanism discourses, witnessed – amongst others later on – by the Belgian participation in the 13th International Architecture Exhibition of the Biennale in Venice, in 2012.[16]

These manifestations started to indicate the necessity for a different thinking model for the dispersed Flemish territory. The ambitions are not light: the housing stock needs to adapt to a new societal composition;[17] a solution must be provided for an increasing social divide that manifests itself in an ever more precarious rental housing market;[18] in an era of scarcity of natural resources, increased flood risk, need for carbon neutrality, mobility crisis and need for more sustainable transport systems and, at the time, of climate change effects on the environment, Flanders needs to rethink how its urbanization can recalibrate in order to include systemic solutions against these crises.[19]

According to B. Secchi and P. Viganò, the Flemish urbanization creates the possibility for a new model for the territory based on the qualities of its horizontality, named "the Horizontal Metropolis".[20] The concept describes the dispersed Flemish territory in its qualities as an extended urban realm that can be progressive and emancipatory.[21] Unlike previous attempts to tackle the dispersed condition in Flanders that adopted the compact city versus open hinterland as a model for change, the Horizontal Metropolis proposes a project – yet to be constructed – that builds on the quality of the

10
Departement Omgeving, "Beleidsplan Ruimte Vlaanderen. Strategische visie", p. 6.

11
Michael Ryckewaert and others, *Een woonmodel in transitie: toekomstverkenning van het Vlaamse wonen*.

12
Belgian Federal Government, "Wet houdende organisatie van de ruimtelijke ordening en van de stedebouw".

13
Pascal De Decker, "Facets of housing and housing policies in Belgium".

14
Omgeving, "Beleidsplan Ruimte Vlaanderen. Strategische Visie.," p. 18.

15
Geert Bekaert and Lieven De Boeck, Xaveer De Geyter Architects, *After-sprawl: Research for The Contemporary City*.

16
"The ambition of the Territory", p. 6.

17
Pascal De Decker and others, *Ruimte voor wonen: trends en uitdagingen*; Karina Van Herck and Bruno De Meulder, *Wonen in meervoud: groepswoningbouw in Vlaanderen: 2000 – 2010*.

18
Michael Ryckewaert and others, *Een woonmodel in transitie. Een toekomstverkenning van het Vlaamse wonen*.

19
Beatrijs Van Der Aa, Lieve Vriens and Andy Van Kerckvoorde, *Effecten van klimaatverandering op bos en natuur*.

current spatial condition.[22] The project is not an alibi to be merely realistic. The concept of the "Horizontal Metropolis" invites us to read the current extended urban realm as isotropic, typologically diverse, and well-serviced, articulated by (landscape and other) figures.[23] It implicitly proposes an extended urban realm where ecological processes are part of the urban.[24] Evidently, the forest is part of that.

If the forest is part of an extended urban realm, then this allows us to explore "the qualities and potentialities that have not yet been fully investigated and appreciated" as part of the palimpsest of the dispersed Flemish territory, i.e. the dynamics of the forest need to be investigated as part of the development of the extended urban realm, in order to understand its meaning and place in the Horizontal Metropolis as a concept.[25] For example, Dehaene's overlapping logics of urbanization, generally adopted in Flanders as the three modes of urbanization – water-, rail-, and road-based development – gain more meaning in the palimpsestic reading of Flanders when the forest influence is investigated.[26] For example, in Rotselaar a settlement system was revealed where almost half of the uniform, post-war allotments were constructed in direct relation to or inside the forest. The dispersed Flemish territory needs to incorporate its natural resources as an integral part of its palimpsestic history, to envision its future, elaborated here with a focus on the forest and at the scale of Flanders.[27] Contaminated by the functionalist sin, urbanists and planners treat city and forest as counterparts. The notion of environmental history, on the other hand – think of the monumental *Nature's Metropolis* by W. Cronon (1992), accidentally published the same year as Harrisons' *Forests: The Shadow of Civilization* – incorporates nature and city as equally dynamic and inseparable elements in the same living environment.[28]

20
Studio Associato Bernardo Secchi – Paola Viganò, "The Horizontal Metropolis"; Paola Viganò, Chiara Cavalieri and Martina Barcelloni Corte, "The Horizontal Metropolis Between Urbanism and Urbanization", p. 420.

21
Paola Viganò, Chiara Cavalieri and Martina Barcelloni Corte, "Between Plan and Pragmatism: Families of Challenges", pp. 401-10.

22
Vlaamse Overheid, de, *Ruimtelijk structuurplan Vlaanderen*.

23
Studio Associato Bernardo Secchi – Paola Viganò, p. 32.

24
Paola Viganò, Chiara Cavalieri and Martina Barcelloni Corte, p. 5.

25
Ibidem, p. 7; André Corboz, "Le territoire comme palimpseste".

26
Also in this dissertation these three modes of transport and its infrastructure are taken as a sequential understanding of the development of (pieces of) the dispersed Flemish territory.

27
Bruno De Meulder and Michiel Dehaene, *Atlas Zuidelijk West-Vlaanderen. Fascikel 0&1*.

28
William Cronon, *Nature's Metropolis: Chicago and the Great West*; Robert Pogue Harrison.

Flanders is one of the least forested regions of Europe with a forest cover of about 13 percent or a total amount of 185 594ha, based on the most "optimistic" measures.[29] The forest evolved towards a predominantly private forest stock (over 70%) and is – just as the urban – increasingly fragmented.[30] The current states of the forest and the urban are the consequence of a culture of dispersedly inhabiting a territory. Forest and urban are therefore spatially similar. On the other hand, only about 2.75 percent of the territory was designated as forest area in the land-use plans, in contrast with the actual forest cover of about 13 percent. The forest is not only privatized and fragmented as the urban, but its legal base for existence is significantly smaller than the urban. Building in the territory is a democratic right, to still have some forest in it a lucky fortune, exemplified by a famous quote of unknown author that testifies to Flanders' culture towards the forest:

> *[...] als we in Vlaanderen een bos vinden, leggen we er een weg door, dan hebben we er twee.*[31]

The necessity of space and significant size for the different land-uses results in increasing tensions and fierce oppositions between interest groups. Due to the interlaced, mixed state of the land-uses, a project for the territory will need continuous negotiation between the different land-uses and their interest groups, by shifting from an oppositional, sectoral attitude to a more constructive, co-productive *modus operandi*.

The need for (more) forest

Why is more forest needed? From a merely quantitative position, a general consensus exists that forest expansion is necessary, considering the European forest cover of 40% and a search for a more coherent EU forest strategy (2013) amongst the different EU members.[32] The strategic forest vision for Flanders first stated the necessity for 30% forest cover as a goal for any region based on European comparative research, but considered 20% forest cover by 2050 more realistic, due to the dispersed state of the territory.[33] That would still mean an increase of at least 80 000ha. When the different interest groups gathered to negotiate the land-use changes based on the strategic structure plan from 1997, the forest clearly lost the lobbying battle against farmers and others, ending up with a mere 10 000ha land-use increase for the coming 10 years.[34] In twenty years since this meagre ambition was set, the forest land-use increase is estimated at 3000ha, but since the measuring margin of error is of the same order of size, the increase in actual forest cannot even be confirmed. Bottom-up data from the forest compensation mechanism actually suggests a forest decrease. The divergence between a vision for forest expansion (80 000 extra) and actual forest realization (net decrease in 20 years) is such that a paradigm shift is clearly needed to achieve the ambition.

From a qualitative perspective, the policy and practice impediments cannot be an alibi to lower the ambitions. The many ecosystem services the forest can provide in a dispersed territory in crisis evidences the absolute necessity to realize a more impactful and structural forest expansion. The forest regulates the territory's metabolism through many of its processes, in analogy to the work of ecologist Paul Duvigneaud on the Brussels metropolis.[35]

29
BOS+, "Opinie | Komt het ooit nog goed tussen Schauvliege en de bosoppervlakte? (deel I)".

30
Today there are over 100 000 forest owners, with an average forest size of 1ha. Theo Vitse, "Afforestation in (West) Flanders".

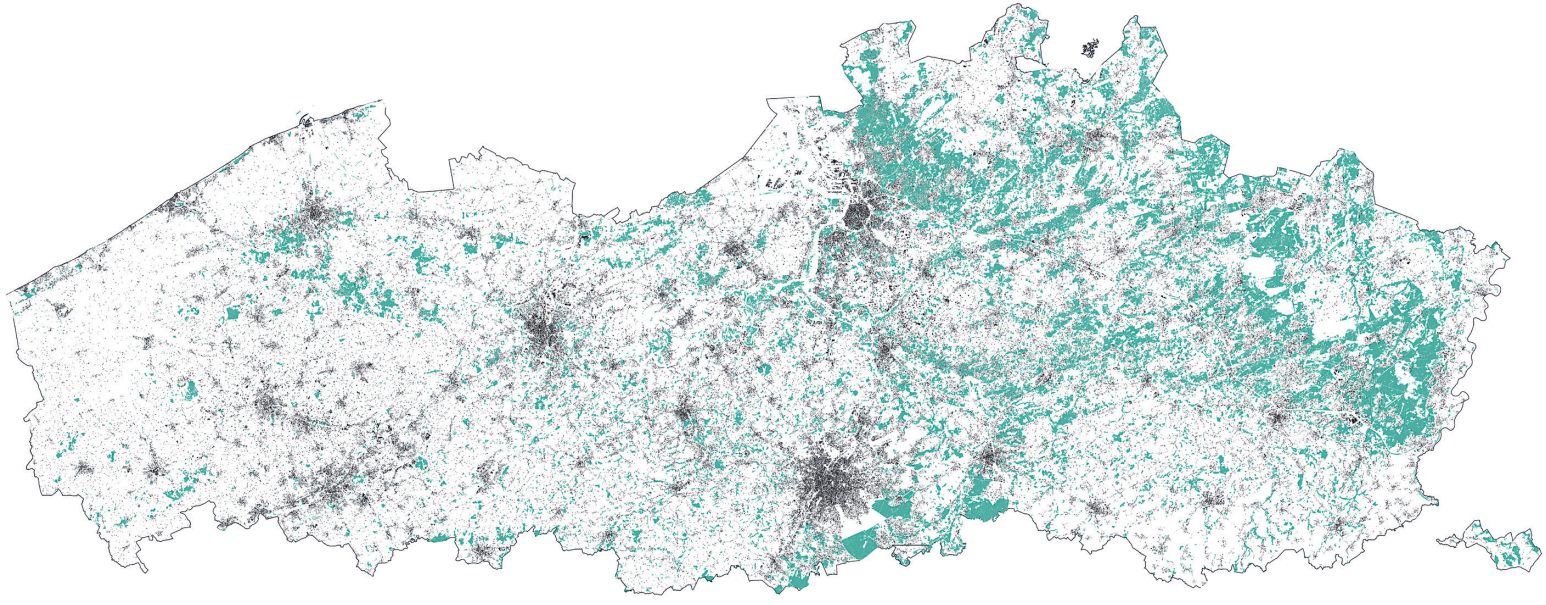
31
"[...] if we find a forest in Flanders, we pull a road through it so we have two forests.", Mens en ruimte, "De gewenste bosstructuur voor Vlaanderen. Visievorming, selectie en globale afbakening/differentiatie voor de gebieden of elementen op schaal 1/50.000 door de overheidssector 'Bosbouw'", p. 15.

32
European Communities, "Sustainable Forestry And the European Union"; Filip Aggestam and Helga Pülzl, "Coordinating the Uncoordinated: The EU Forest Strategy".

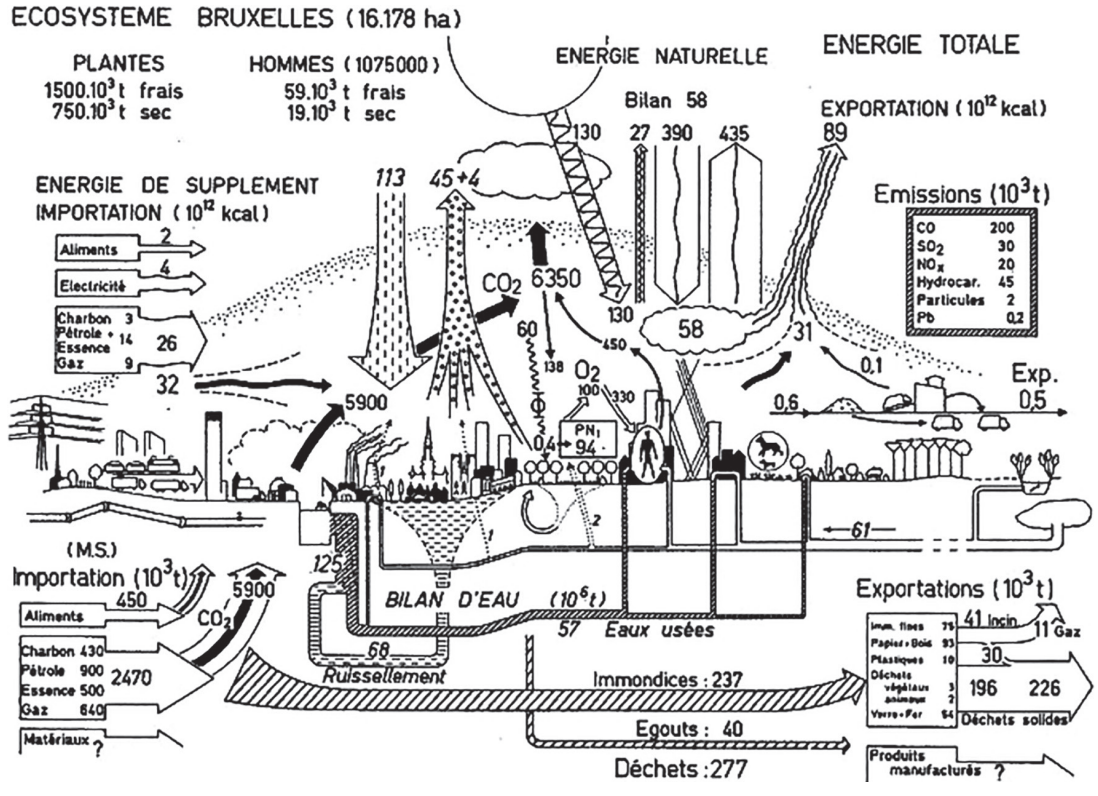
33
Mens en ruimte, p. 8.

34
Bart Muys, "Bosbeleid in Vlaanderen van heden naar toekomst", p. 2.

35
Paul Duvigneaud and others, *Études écologiques de l'écosystème urbain bruxellois. Contributions.*



Forest and urbanization in Flanders.



Metabolism of the Brussels Ecosystem.

Forest for leisure

The lack of structural size forests, the lack of adaptability for leisure, and especially the lack of equipped and accessible public forests creates a deficit – estimated at around 30 000ha – and high pressure on the existing forests that results in a too intensive use of the forest.[36] The fragmentation and reduction of the forest stand in contrast with the increased search of the forest for recreational visits. In 2018, a total of 15 million forest visits per year are estimated by 77% of the population, with a steady increase over the last years.[37] The recent pandemic accelerated this increase.

Forest for wood production

All forests produce wood. Sustainable wood production is regulated under certain certified labels as the Forest Stewardship Council (FSC) and other. A discrepancy exists between private (2/3 of the forest) and public forest. Many private forests are still solely used for productive purposes and not optimized for other forest ecosystem services. Even so, the total produced wood in Flanders reaches only about 851 000 cubic meter, while the total wood necessity is about 6.2 million cubic meters.[38]

Heat regulation

The increasing urbanization and impermeabilization of the soil (up to 14%) and the lack of qualitative tree canopies create more radiation uptake and higher temperatures. The heat islands grow and flow into each other, creating heat archipelagos. Climate change is expected to result in a temperature rise of between 0.7 (mild) and 7.2°C (severe) on the 100-year prediction.[39] Forests reduce the temperature drastically, on average between 1 and 2°C, but in dense urban conditions the differences can be higher (up to 4.7°C).[40] Systemically introduced forests can combat the expansion and coagulation of heat islands and start remediating the expected temperature rise.

36
Mens en ruimte, p. 9. In size, 30 000ha are 5 additional Sonian Forests in Flanders.

37
Ann Pisman and others, *Ruimterapport Vlaanderen (RURA): Een ruimtelijke analyse van Vlaanderen | 2018*.

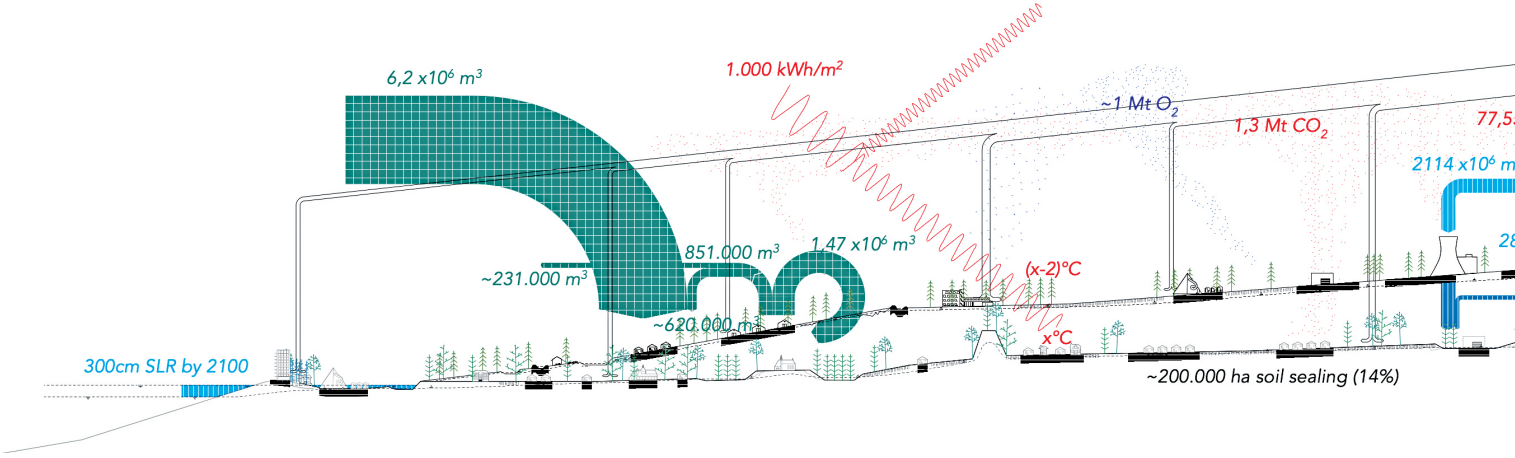
38
Ibidem, p. 13.

39
Technum, "Klimaatadaptatie en ruimtelijke inrichting".

40
Ibidem, p. 72.

41
Y. Meyus and others, "Opbouw van een Vlaams Grondwatervoedingsmodel".

42
Vlaamse Milieumaatschappij - Vmm, "Opstellen van richtlijnen voor het meten van de infiltratiecapaciteit en het modelmatig onderbouwen voor de dimensionering van infitratievoorzieningen".



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Ilse Simoens, Ann Van Herzele and Francis Turkelboom, *Natuurrapport - Toestand en trend van ecosystemen en ecosysteemdiensten in Vlaanderen*.

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Rita Sousa-Silva and others, "Adapting forest management to climate change in Europe: linking perceptions to adaptive responses".

45
R. Sikkema, "Bos en Hout: dé kans voor een betere CO2-balans".

46
The European Commission, "Our vision for A Clean Planet for All. A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy".

Water cycle

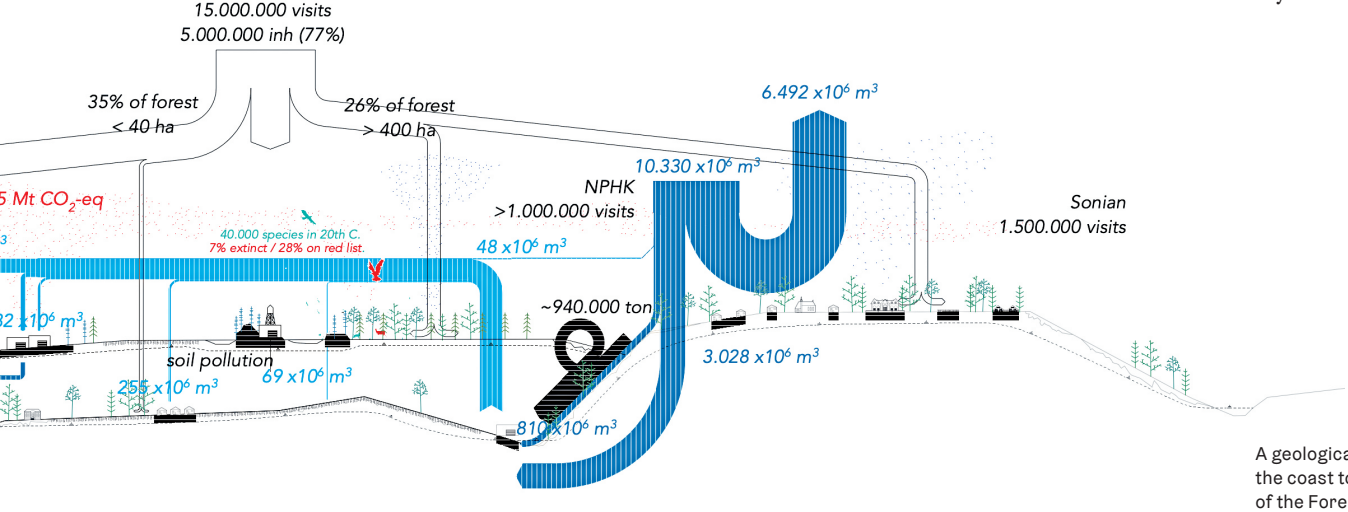
Flanders receives an average of 756mm, of which 476mm return to the atmosphere through evapotranspiration – much of which through forests –, 222mm infiltrate and 59mm are runoff.[41] In the future, due to climate change, rainfall will be more concentrated with heavy rains in summer and less rainfall in winter, which disrupts the natural ground water balance and causes more and more intense flood events. The high soil sealing (13%) aggravates this situation.[42] Already today Flanders suffers from historic drought problems and record heights of flood levels. With water availability per capita being 1000 – 1500m³ per person per year, Flanders is a "water scarce" region. Forests greatly stimulate the water cycle.

Biodiversity

In the 20th Century, Flanders counted about 40 000 species, of which 7% are now extinct, while 28% are on the red list, threatened to undergo the same fate.[43] Climate change increases the pressure on biodiversity. Forests play an important role in maintaining biodiversity and strengthening its resilience. The larger the forest, the better it can cope with climate change. Old forests – Ferraris forests – play a special role in maintaining the territory's biodiversity. Forests' health is important, based on principles of mixed stands and indigenous species under a pro-silva management.[44]

Carbon neutrality

Forests absorb and fix CO2. Flanders produces about 77.55 Mega tons of CO yearly. Only 1.3 Mega tons of CO2 are absorbed yearly by Flanders' forests while producing 1 Mega ton of O2.[45] A forest absorbs between 5 and 12 tons of CO2 per ha per year, depending on its lifecycle. Forest expansion will help on the remediation side of the carbon cycle by carbon fixation, therefore contributing to the EU goals on carbon neutrality.[46]



A geological section through Flanders from the coast to Middle-High Belgium and the indication of the Forest Urban metabolism.

The need for forest urbanism

The different current or future (ecological) crises questions the dispersed territory's functioning and the role of the forest. If the forest can serve as a multifunctional operator to contribute to remediating the ecological crises, then its strategic position in the territory needs to be reassessed, since an adequate, ambitious, and effective forest policy remains absent in the spatial planning of the dispersed Flemish territory. Foresters as Muys wrote clear indicative guidelines for a kind of "park territory", terminology used in Muys' dissertation, in 2002.[47] However, neither this term nor what it stands for has been adopted by urbanists and urban planners, let alone by policy in general. The forest remains relatively hidden and passive in the urbanism discourse.

The dispersed, interlaced state of the urban with the landscape demands an integrated vision. Forest expansion cannot be simply about the forest alone. Urban forestry and forest urbanism become necessary terms that put a name on the effort to find constructive interplays between the forest and the urban, both historically and for the future.

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Bart Muys, p. 3.