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Sensing Nature: Green Databases and Maintenance as/of Care

Kopitz, L.

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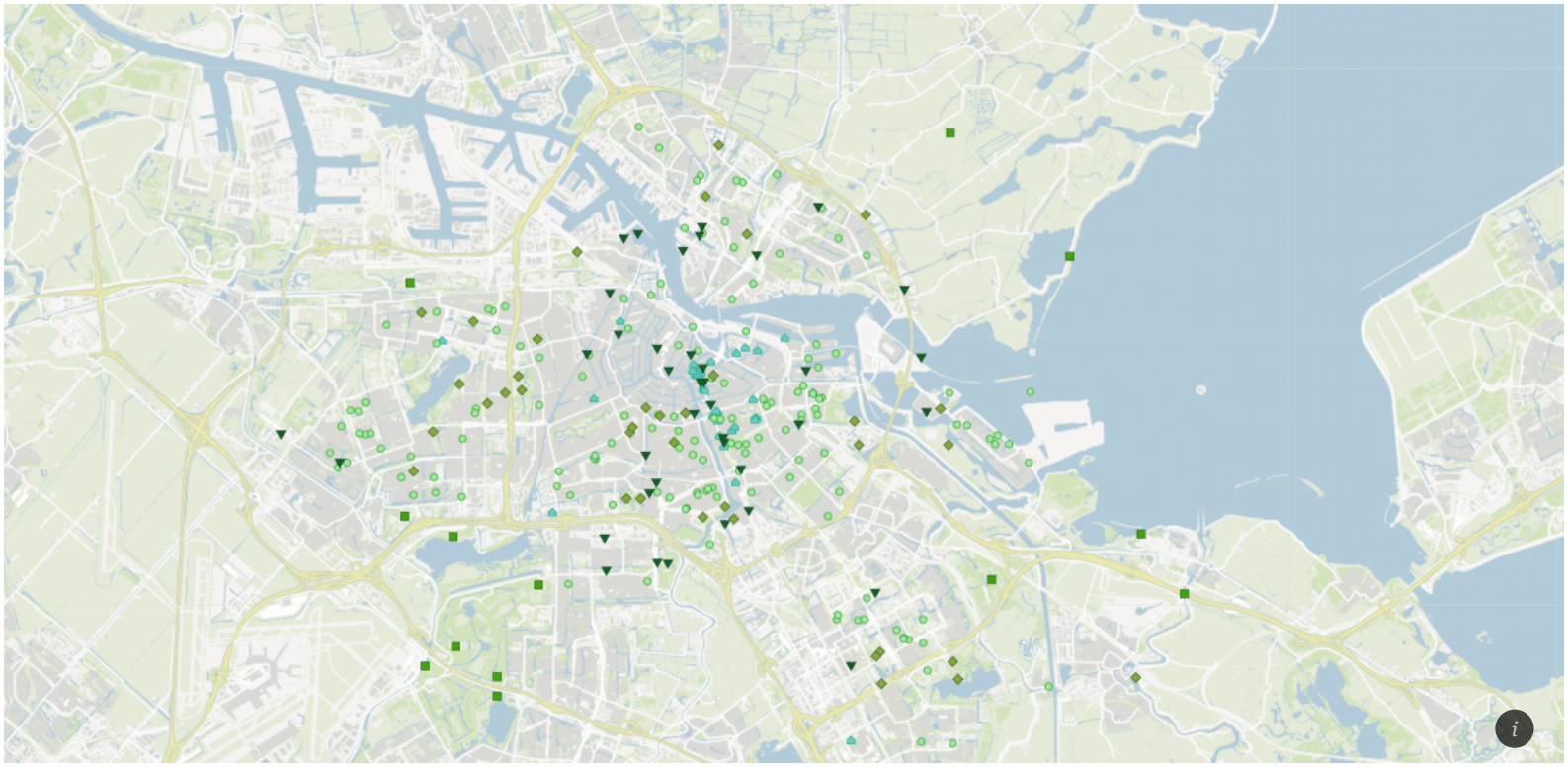

Linda Kopitz traces how the vision for Amsterdam's sustainable future has been digitally mapped by "green" databases in ways that construct ideas of maintenance as care, and care as maintenance. Yet such mediations of urban nature risk fragmenting sustainable practices in the present.

[Ed. note: this article is part of a dossier on Caring Cities.]

A short bike ride away, every resident should be able to reach one of the many city parks, an urban forest, or the surrounding landscape. We also envision a new urban forest to significantly increase the number of trees and wildlife habitats in Amsterdam. We also must not forget to include vegetation on and around buildings. A concrete city is an unlivable city. There are so many opportunities on roofs and façades, as well as in private gardens and yards. With more plants and trees, we can create a more beautiful, healthier, and cooler city with lots of opportunities for wildlife to thrive, thus ensuring greater biodiversity. (Amsterdam Green Infrastructure Vision 2050)

From the United Nations' Sustainable Cities initiative to the European Union's strategic emphasis on "greening cities", creating urban environments that are more green, more

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sustainable, and more livable has become a priority in urban planning approaches and political agendas in Europe and beyond. Within this larger context, Amsterdam presents its commitment to creating “safe, affordable and resilient cities with green and culturally inspiring living conditions”[1] via a variety of interactive theme maps and open geodata that simultaneously trace and produce Amsterdam as a sustainable city. While part of a larger assemblage of media, the mediation of nature through digitized maps functions as an entry point into the — literal — mapping of urban visions onto the existing environment. In the *Amsterdam Green Infrastructure Vision 2050,* urban nature becomes part of a larger (if ambiguous) idea of infrastructure stretching from the material into the virtual in an interconnected loop of sensing, building and controlling. Following Jennifer Gabrys’s proposition that “infrastructure is increasingly more than the concrete and the cabled, it is also the green and the growing,”[2] this article explores how “green” databases — like the one maintained by the municipality of Amsterdam — contribute to an understanding of “urban nature” as something to be mapped, mediated and maintained. Understanding maps “between fixing time and examining space”[3] points us to their negotiation of not just spatiality but also temporality. In dialogue with the infrastructural vision of more green, more livable, more sustainable cities, I propose to understand these digital maps as an archive of the future.

The question of mapping nature is not necessarily unique to Amsterdam, especially mapping existing urban green. For instance, New York conducted a “tree census” in 2015 with the help of 2,200 volunteers — the largest citizen science initiative in the history of the New York City Department of Parks & Recreation. Other initiatives — both in the private and the public sector — have turned to technology to trace the current state of urban greenery. This paper is interested in the step after these forms of urban sensing: what happens when urban sensors and sensed data become part of a larger assemblage of practices imagining, negotiating and producing urban nature? Building on Laura Kurgan and Dare Brawley’s suggestion that infrastructural systems “inscribe meaning in urban environments and the ways such systems aim to both rationalize and transform the city,”[4] this article draws a connection between the

5. and the Other in the Pedestrian City

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maintenance of “green” infrastructures, “green” databases, and visions of “green” futures.

Mapped: Suspending Urban Nature

In the *Amsterdam Green Infrastructure Vision 2050*, the experience of sustainability is closely connected to questions of distance: urban nature is imagined as within reach, only a short bike ride away. Playing with Aroussiak Gabrielian’s suggestion that “maps are not the actual territory: they are fictions,”[5] I propose that the mapping of green infrastructures points to the spatial and temporal disconnect between “sensing” the now and imagining the future. In other words, the digital map is tasked with visualizing, manifesting and enacting the promise of the urban vision of Amsterdam as more green, more sustainable and more caring. In doing so, the temporal, spatial and sensorial dimensions of experiencing urban nature are held together by the map as medium. Berenice Fisher and Joan Tronto’s understanding of care as encompassing “our bodies, our selves, and our environment, all of which we seek to interweave in a complex, life-sustaining web”[6] already points to maintenance across temporal but also spatial dimensions. Mapped in digital green databases, the temporality of urban nature becomes suspended between the past, the present and the (envisioned) future.

Constructing an idea of care as maintenance, and maintenance as care, mapping urban nature complicates the boundary between real and virtual, present and possible environments. While Aroussiak Gabrelian suggests that digital maps “abstract the built world, allowing us to imagine it otherwise,”[7] my reading of “green” databases like the one maintained by the municipality of Amsterdam is somewhat less optimistic. Cataloging greened rooftops and other “green” constructions, the population and health of municipally owned trees as well as the spread of invasive and potentially destructive plant species, the interface does not differentiate between desirable and undesirable futures logically or aesthetically. Through the publicly available documents as well as the different maps, the emphasis lies on Amsterdam “remaining” a livable city, and “maintaining” the existing infrastructures. Whereas “care implicitly suggests that it will lead to some type of action,”[8] the interactivity of the maps discussed here arguably promotes *in*-activity. Presented as a “digital copy” of Amsterdam, the different

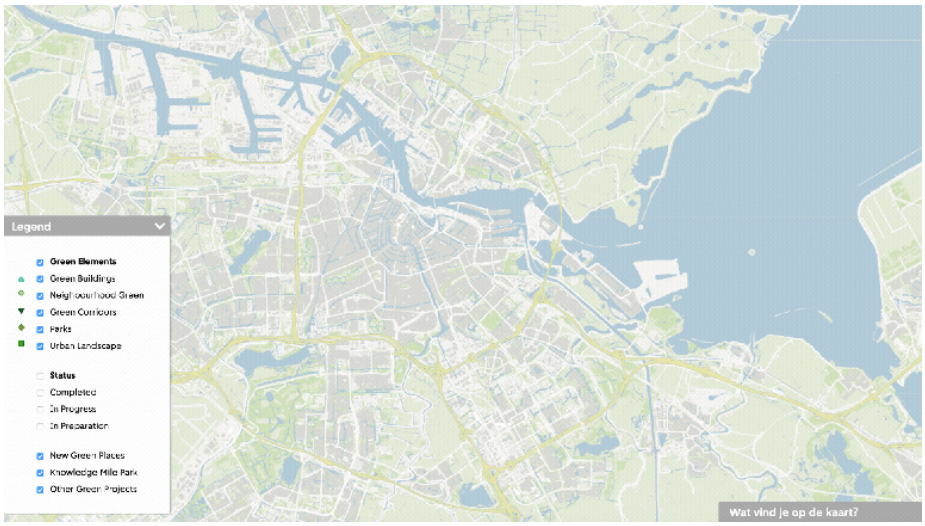
maps and models shift fluidly from “inventories” of urban nature to “simulations” of an alternative vision of the city as a more sustainable and more livable space — thereby further fragmenting sustainable practices in the now.

To negotiate potential tensions between the natural and the urban, the green database draws on different modes from restriction via recording to production. While all of these digital maps are available via the same platform and visualized in similar ways, their definition of what — and when — is being mapped differs fundamentally. For instance, the map *“*Oak Processionary,” which traces the spread of the oak processionary caterpillar, a species that is damaging to oak trees and poisonous to humans, is “connected in real time to the registration system in which changes are made continuously. If a nest has been removed, this will also be indicated.”[9] In doing so, the map traces and represents the presence of these insects in an ever-changing visualization. Rather than tracing changes in the more-than-human assemblages of the city, however, other maps capture a specific moment in time. A key example for this is the “Main Green Infrastructure” map: divided into two selections, “Types of Green” and “Urban Green,” it highlights city parks, nature reserves, sport parks, communal gardens, and memorial sites as well as green connections in different colors and patterns across the entire urban area. As a so-called “toetskaart” — a “test map” — this map functions as a point of comparison in decision making processes, a point of contrast to decide the desirability of infrastructural developments through the lens of sustainability:

The city is growing: more and more buildings are being built. Due to the limited space, parks and other green areas are under pressure. A complete city needs sufficient and varied greenery to function properly. That is why the green areas that are indispensable for the city and that the city council wants to preserve for the future have been designated as Main Green Structure on this “test map.”[10]

To be able to fulfill this function, the map has to remain static — the data, once visualized, stays the same. Yet other maps visualize different moments in time. What’s most notable in a map like “Projects for a Greener Amsterdam” is the vagueness of the temporal dimension. The direct connection to the *Amsterdam Green*

Infrastructure Vision and its promise of sustainability “now and in the future” makes this suspension even more notable.



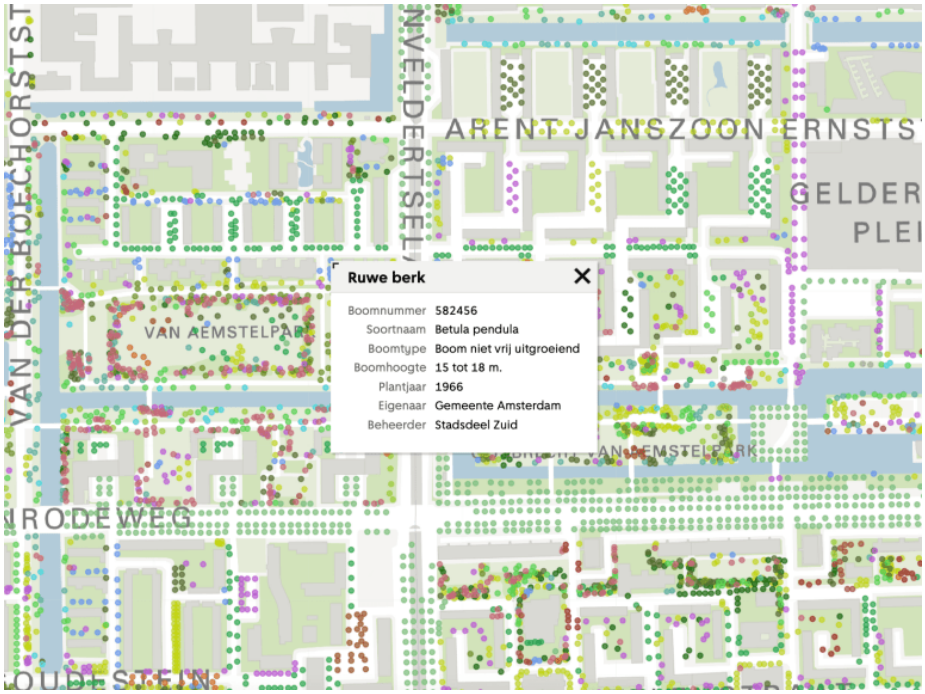
The map “Projects for a Greener Amsterdam” flattens the past, the present and the (envisioned) future into one spatial dimension.

With three selectable fields, the map displays projects as “Completed,” “In Progress” and “In Preparation” — and thereby performs an understanding of the “urban as a process rather than as a discrete site.”[11] Rather than “just” portraying a starting point or “just” representing a future, the maps flatten the past, the present and the future into one spatial dimension. This “reachable” distance between urban living and the city parks, urban forests or surrounding landscape outlined in the green infrastructure vision is projected onto the map — and importantly as already achieved, already completed, already produced. Arguably, it is precisely the specificity of the map as medium that counteracts the ambiguity inherent in urban planning approaches like the *Amsterdam Green Infrastructure Vision 2050*. Rather than opening up towards an unexpected — and unplanned — growth of nature, the mediation of urban nature through digital maps constructs a linear path towards achieving the vision of the “sustainable” city, thereby potentially restricting an alternative interpretation and realization of what greening the city really means. All of the maps discussed here are implicated in the larger vision of Amsterdam as a “beautiful, healthy and livable city for people, plants and animals” in different ways. Approaching the spatiality of the map through a temporal lens highlights the flattening of the distance between the development and the developed, between the now and the future.

Mediated: Visualizing Urban Futures

As part of a larger assemblage of mediated productions of what "nature" means, digital maps point to the tension between representation and manifestation. Building on Mónica Degen's understanding of urban change as timescape,[12] I propose to read the negotiation of more sustainable futures across different mediascapes. The different temporalities of media forms and formats in turn shape the temporality of the visions represented in and through them. "Reading and making the city through its representation,"[13] as Kurgan and Brawley put it, becomes complicated through the types of visual representations drawn on in the *Amsterdam Green Infrastructure Vision 2050.* In the few photographs inserted in the publicly available material, nature is fractured into details, into close-ups of individual plants, insects and birds and cropped fragments of built environments. Interestingly, the virtual renderings woven into the larger narrative of the infrastructural vision only expand this narrow vision slightly further. Placing the individual virtual renderings next to each other constructs one neighborhood — and notably a historical one. The only vision of the entire city of Amsterdam as living and livable space for human and more-than-human inhabitants, then, is produced in and through the map. Visualizing the urban future through the medium of the map arguably distances the practice of simultaneous sense-making and place-making from the immediate experience of living in a city in transformation.

For instance, the interactive map "*Trees — In Maintenance of City of Amsterdam*" displays more than 260,000 trees registered in the municipal management system, with a filter positioning the fifteen most common tree types in different colors on the map. Each registered tree can be clicked as well, displaying further information including the identification number of the specific tree, the year of plantation and the height at the last monitoring. The specificity of this map in sensing and visualizing urban nature in a defined location contrasts with the ambiguousness of the virtual renderings in their production of an urban nature that could be anywhere — and any time — in the city.



The map "Trees — In Maintenance of the City of Amsterdam"

In their contextualization of the digital image as "softimage," Ingrid Hoelzl and Remi Marie propose that "the image is no longer a stable representation of the world, but a programmable view of a database that is updated."[14] The exploration of the role of digital databases in the production of urban nature points to the entanglement between questions of sustainability and technology, care and connectivity. The abstraction of real environments in digital maps could be understood as a similar displacement of caring practices from the immediate and lived to the mediated and distant. In the dual logic of maintenance as care and care as maintenance, the spatial and temporal tensions in the *mapping* of urban nature become foregrounded.

"The city will be designed and maintained as ecologically and environmentally friendly as possible", emphasizes the *Amsterdam Green Infrastructure Vision 2050*. However, it is precisely this emphasis on design and maintenance that disrupts the potential of more-than-human entanglements in the urban. Drawing on assemblage theory, Tim Cresswell suggests that we might understand place as "a discrete thing that is made up from the relation between parts that are always changing."[15] Instead, "green" databases contribute to an understanding of nature as infrastructure: as something to be constructed and maintained more than something to be traced in its becoming. In tension with Doreen

Massey's suggestion that space is always becoming, always under construction — "always in the process of being made"[16] — the mediation of urban nature through digital maps creates a sense of inevitability. These trees will be planted, these parks will be protected, these connections have already been formed. In these maps, there is — quite literally — no space for the unexpected and uncontrolled assemblage of a more-than-human environment that is central to the living city. Here, I position my discussion of mediated urban nature between an understanding of our knowledge of the world as "ever more technologically mediated, produced, enacted, and contested"[17] and what Joy Parr calls the "tuned reciprocity among body, environment, and technology."[18] Even though it cannot be sensed (yet) by and through our bodies and our technologies, the future presence of nature is mediated by the map. In other words: there appears to be a gap between sensed nature (in the form of mediated maps) and sensing nature (in the form of sensory experiences).

Moving from mapping plants to animals, for example, the map "Bats" represents bats as urban inhabitants in 2019, 2020, 2021 and 2022. The presence of different bat species is sensed with a so-called "Batlogger", a recording device for the ultrasonic sound of the animals, both via static locations and via the walking and cycling of specific routes at different moments. Yet this dual sense of movement, of moving to sense and of sensing something moving, is lost once the data has been annually collected and uploaded into the database. As with the other maps discussed here, the bats are displayed as static points, clustered around the different sensing routes. Reading and making the city through the map prioritizes datafied knowledge over other forms of knowing, especially with and through the body. Mónica Degen and Gillian Rose emphasize that sensory engagement "contributes to our spatial orientation, frames our awareness of spatial relationships and facilitates the appreciation of the qualities of particular places".[19] Datafied and digitalized in these maps, the mediation of Amsterdam's sustainable future distances us from actually sensing nature in the present. Rather than tracing the adjustment of, for instance, the bats to the urban environment in a constantly changing "living city"[20] — through alternative movements or nesting spaces — the map translates movement into stasis, sensing into measuring, multimodality into

mediation. In doing so, both the individual maps and the collection of maps within the green databases counteract Sarah Pink's suggestion that "the ways environments *feel* is important in shaping our understanding of the social worlds that they connect with."[21] Understanding the map as mediating — as translating — the in-between of the now and the future highlights the distanced form of sense-making of urban nature. The digital senses the natural, to then mediate the natural through the digital in turn. If care means to "maintain, continue, and repair our "world" so that we can live in it as well as possible,"[22] green databases arguably do the exact opposite, and instead contribute to an idea of nature as traceable, replaceable and always already technologically mediated. Considering the map as a method of mediation ultimately challenges us to consider whether caring for infrastructures leads to more — or less — caring spaces.

Maintained: Archiving Urban Care

The concept of *living cities*[23] points to the city as an assemblage of human and non-human inhabitants, connected through shared living space in ever-changing connections. The maps discussed here arguably share this starting point in their mediation of bats and trees as much as green and built infrastructures. However, the mapping and mediating of urban nature through green databases undermines the idea of unexpected and uncontrollable connections in the city. As Daniel A. Barber and Erin Putalik argue, visions of sustainable, ecological, caring urban environments are frequently underpinned by a conception of nature "as a resource to be optimized, scientifically managed, and administered by experts."[24] Returning to the idea of the city as assemblage in which "constituent parts can be removed and replaced,"[25] the mapping, mediating and maintaining of urban nature appears to become a question of hierarchy and desirability. Which urban inhabitants, human and more-than-human, are being cared for — and which are not? Filtered through the functionality of the database, longstanding attitudes about which natural elements are part of the larger imagination of "green," and which are not, become pronounced.

For instance, under the section "Green, Nature, and Agriculture" the green database visualizes the presence of "Knotweed" in one map, the presence of "Elm Trees" in another. Visually, the overview of

these two plants does not differentiate: both visualize differences in different colors, both are updated at specific inspection intervals. Yet they trace very different plants: while elm trees are connected to imaginations of Amsterdam's cityscape — particularly through their presence in the historical city center — Japanese knotweed is an invasive exotic species placed on the "blacklist" of undesirable plants. While the functions menu features the option "panoramic images," most of the maps discussed here actually allow for a panoramic view of the neighborhood, the street or even the specific plants mapped in the respective map. There is one notable exception, however: the map "Knotweed" actually contains photographs, snapshots, of specific growing places throughout the city. In other words: the only nature visualized beyond the datafied logic of the map is an undesirable nature.

Rather than answering the Care Collective's call for urban planning and design to "facilitate forms of connective care and infrastructural caring",[26] the mediation of urban nature in and through green databases highlights the infrastructure of municipal care rather than the connected dimensions of caring and being cared for. Between the temporal suspension and spatial disconnection, the urban future outlined and cared for in the *Amsterdam Green Infrastructure Vision 2050* becomes the only possible one — now and in the future. Shannon Mattern's caution that "We should always ask: what, exactly, is being maintained?"[27] points to the intersection between maintenance, care and urban nature. The emphasis on maintenance highlights how urban nature, from green rooftops to green infrastructures, is operationalized to "perform particular work that is meant to achieve the infrastructural ideal of sustainable urbanism."[28] Kurgan and Brawley argue that the discourse of urban 'smartness' "implies an already full knowledge of the city and thus minimizes the need for other forms of knowing."[29] This article pushes this understanding further by suggesting that the smart city — the mapped, mediated and maintained city — not only prioritizes technologically sensed knowledge, but also prioritizes human inactivity. Maintaining nature, here, equals maintaining a status quo. Adopting Edward Casey's theory of place as a form of constantly changing "event," the idea of place-making suggested here emphasizes that places are not "fixed" but rather discursively constructed and constantly changing in that construction.[30] With

interactive maps provided by the municipality of Amsterdam and based on data gathered by and through municipal sensing infrastructure, the green database also points to questions of representational politics: framing the “green” city is entangled in questions of participation and ownership of space. Maintenance, in this context, also means preserving the unified infrastructural vision as designed by the municipality of Amsterdam.

Constructing an idea of care as maintenance, and maintenance as care, mapping urban nature complicates the boundary between real and virtual, present and possible environments. While Aroussiak Gabrelian suggests that digital maps “abstract the built world, allowing us to imagine it otherwise,”[31] my reading of “green” databases like the one maintained by the municipality of Amsterdam is somewhat less optimistic. Cataloging greened rooftops and other “green” constructions, the population and health of municipally owned trees as well as the spread of invasive and potentially destructive plant species, the interface does not differentiate between desirable and undesirable futures logically or aesthetically. Through the publicly available documents as well as the different maps, the emphasis lies on Amsterdam “remaining” a livable city, and “maintaining” the existing infrastructures. Whereas “care implicitly suggests that it will lead to some type of action,”[32] the interactivity of the maps discussed here arguably promotes *in*-activity. Presented as a “digital copy” of Amsterdam, the different maps and models shift fluidly from “inventories” of urban nature to “simulations” of an alternative vision of the city as a more sustainable and more livable space — thereby further fragmenting sustainable practices in the now.

Linda Kopitz

Linda Kopitz has studied at the University of Leipzig, Germany, and the University of Miami, USA, and holds a Research Masters in Media Studies from the University of Amsterdam, The Netherlands. Her PhD research – situated between urban studies and media studies – explores the entanglement between real and virtual environments in sustainable architecture. Connecting her professional experience as a Creative Director with her interdisciplinary academic work, she is currently working as a Lecturer in Cross-Media Culture at the University of Amsterdam, where her main research interests are architectural media, gender and the intersection between technology and imaginations of the everyday.

Notes

↑**1** United Nations Sustainable Development, “Cities – United Nations Sustainable Development Action” (2015), accessed January 31, 2023, https://www.un.org/sustainabledevelopment/cities.

↑**2** Jennifer Gabrys, “Programming Nature as Infrastructure in the Smart Forest City”, *Journal of Urban Technology* 29, no. 1 (January 2, 2022): 13–19, 14. https://doi.org/10.1080/10630732.2021.2004067.

↑**3** Laura Kurgan and Dare Brawley, eds., *Ways of Knowing Cities* (New York, NY: Columbia Books on Architecture and the City, 2019), 19.

↑**4** Kurgan and Brawley, *Ways of Knowing*, 16.

↑**5** Aroussiak Gabrielian, “Google Street View’s Projected Futures”, *Mediapolis: A Journal of Cities and Culture* 2, no.2 (June 2017), https://www.mediapolisjournal.com/2017/06/google-street-views-projected-futures/.

↑**6** Joan C. Tronto, *Moral Boundaries: A Political Argument for an Ethic of Care* (New York: Routledge, 1993), 103.

↑**7,** ↑**31** Gabrielian, *Google Street View’s Projected Futures*.

↑**8,** ↑**32** Tronto, *Moral Boundaries*, 102.

↑**9** https://maps.amsterdam.nl/eikenprocessierups/

↑**10** https://maps.amsterdam.nl/groenprojecten/

↑**11** Kurgan and Brawley, *Ways of Knowing*, 20.

↑**12** Mónica Degen, “Timescapes of Urban Change: The Temporalities of Regenerated Streets,” *The Sociological Review* 66, no. 5 (September 2018): 1074–92. https://doi.org/10.1177/0038026118771290.

↑**13** Kurgan and Brawley, *Ways of Knowing*, 19.

↑**14** Ingrid Hoelzl and Rémi Marie, *Softimage: Towards a New*

Theory of the Digital Image, (Bristol: Intellect, 2015).

↑**15** Tim Cresswell, *Place: An Introduction*, Second edition (Chichester: J. Wiley & Sons, 2015), 53.

↑**16** Doreen B. Massey, *For Space* (London; Thousand Oaks: SAGE, 2005), 9.

↑**17** Damian F. White and Chris Wilbert, *Technonatures: Environments, Technologies, Spaces and Places in the Twenty-First Century*, Environmental Humanities (Waterloo, Ontario: Wilfrid Laurier University Press, 2009), 6.

↑**18** Joy Parr, *Sensing Changes: Technologies, Environments, and the Everyday, 1953-2003* (Vancouver : UBC Press , 2010), 4.

↑**19** Mónica Degen and Gillian Rose, "Spectacle and/as the New Urban Aesthetic," *Mediapolis: A Journal of Cities and Culture* 8, no. 1 (March 2023). https://www.mediapolisjournal.com/2023/03/new-urban-aesthetic/.

↑**20** Steve Hinchliffe and Sarah Whatmore, "Living Cities: Toward a Politics of Conviviality," In *Technonatures: Environments, Technologies, Spaces and Places in the Twenty-First Century*, ed. Damian F. White and Chris Wilbert (Waterloo, Ontario: Wilfrid Laurier University Press, 2009), 105–124.

↑**21** Sarah Pink, *Doing Sensory Ethnography*. Second edition (London and Thousand Oaks, California: Sage Publications, 2015).

↑**22** Joan C. Tronto and Berenice Fisher, "Toward a Feminist Theory of Caring," In *Circles of Care: Work and Identity in Women's Lives*, edited by Emily K. Abel and Margaret K. Nelson (Albany, N.Y: State University of New York Press, 1990), 40.

↑**23** Hinchliffe and Whatmore, "Living Cities: Toward a Politics of Conviviality."

↑**24** Daniel A. Barber and Erin Putalik, "Forest, Tower, City: Rethinking the Green Machine Aesthetic," *Harvard Design Magazine*, 2018. https://www.harvarddesignmagazine.org/issues/45/forest-tower-city-rethinking-the-green-machine-aesthetic.

↑**25** Cresswell, *Place,* 52.

↑**26** The Care Collective, *The Care Manifesto: The Politics of Interdependence*, (London: Verso Books 2020), 51.

↑**27** Shannon Mattern, “Maintenance and Care,” *Places Journal*, November 20, 2018. https://doi.org/10.22269/181120.

↑**28** Gabrys, *Programming Nature as Infrastructure in the Smart Forest City*, 14.

↑**29** Kurgan and Brawley, *Ways of Knowing*, 17.

↑**30** Edward S. Casey, *The Fate of Place: A Philosophical History* (Berkeley: University of California Press, 1997).

Kopitz, Linda. "Sensing Nature: Green Databases and Maintenance as/of Care." Mediapolis: A Journal of Cities and Culture 8, no. 2 (June 2023)