

# The Agency of Ecology

Chris Reed

I write from the perspective of contemporary landscape, urbanism, and design practices, specifically as they may be informed by ideas of ecology and natural systems. Within this frame, I would like to argue for a fuller, more engaged approach to the ecological aspect of ecological urbanism—but not because I think it is more important than many of the issues that pertain to cities and city systems, and social dynamics and technology, that are involved in the work at hand. Rather, I see the potential of ecology to be a more complex and more provocative informing and formative idea (and force) for how cities are made, and for how cities actively evolve, reshape themselves, and are reshaped through time.

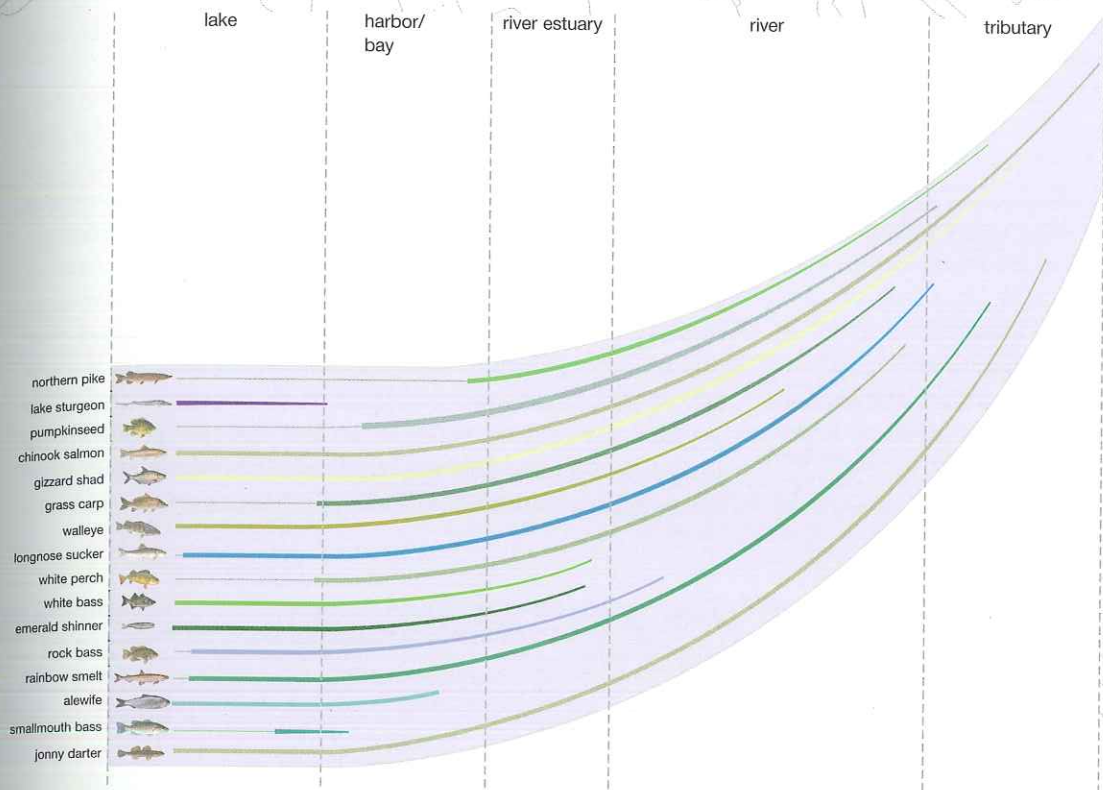
For me, contemporary ideas of ecology and planning can be traced to the work of Ian McHarg in the late 1960s and early 1970s, in which analysis and assessment of natural resources (geology, soils, water, habitat, etc.) could inform the best places and ways to develop land for social occupation.<sup>1</sup> Although the methodology can be easily criticized for its claims with regard to objectivity, and for its objectification of landscape components as things simply to be mapped and quantified, McHarg's methodology and practice opened up planning thought to the idea of the interconnectedness between cities/suburbs and the natural world: Design WITH Nature. Perhaps McHarg's use of the term "propinquity" (nearness, affinity, kinship) best characterizes his sense of this relationship between human and nonhuman worlds.

But even as McHarg's methodology was taking hold, new ideas about ecology were emerging. Richard Forman's research during the 1980s and early 1990s developed new understandings of and new terminologies for ecological systems, which were now described as matrices, webs, and networks, for instance, and which were characterized by adjacencies, overlaps, and juxtapositions.<sup>2</sup> This work importantly recognized the dynamic, living nature of ecological systems—not just the physical stuff McHarg was mapping, but how the stuff of the physical world supports the movement and exchange of ecological matter (water, seeds, wildlife). Others pushed these ideas further—in fact the field was shifting away from an understanding of systems that attempt to achieve a predictable

temporary landscape, urbanally as they may be in natural systems. Within this smaller, more engaged apologetic urbanism—but not than many of the isms, and social dynamics in the work at hand. be a more complex and native idea (and force) cities actively evolve, through time.

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**Fish habitat, Lake Ontario:**  
mapping of ecological tendencies  
(that both river and lake fish breed  
in the river-lake interface, or lagoon  
marsh) informs the calibration  
of design strategies for habitat  
generation.

equilibrium or steady-state condition to systems typically in states of change, adapting to subtle or dramatic changes in inputs, resources, and climate. Adaptation, appropriation, and flexibility became the hallmarks of “successful” systems, as it is through ecosystems’ ability to respond to changing environmental conditions that they persist.<sup>3</sup>

This shift opened new worlds for critical discourse in design and urbanism: Stan Allen identified the new ecology along with engineering systems as important examples of “material practices,” which focused not so much on “what things look like” but more on “what they can do.”<sup>4</sup> His work in collaboration with James Corner and the ecologist Nina-Marie Lister in Toronto’s Downsview Park Competition of the late 1990s imagined the setting up of physical scaffolds that would sponsor the propagation of emergent ecologies, natural systems that would be seeded initially and then evolve with an increasing level of complexity and adaptability over time. Even the Downsview brief was important here, as it required entries to account for long-term timeframes (and a level of uncertainty) with regard to project evolution.<sup>5</sup>

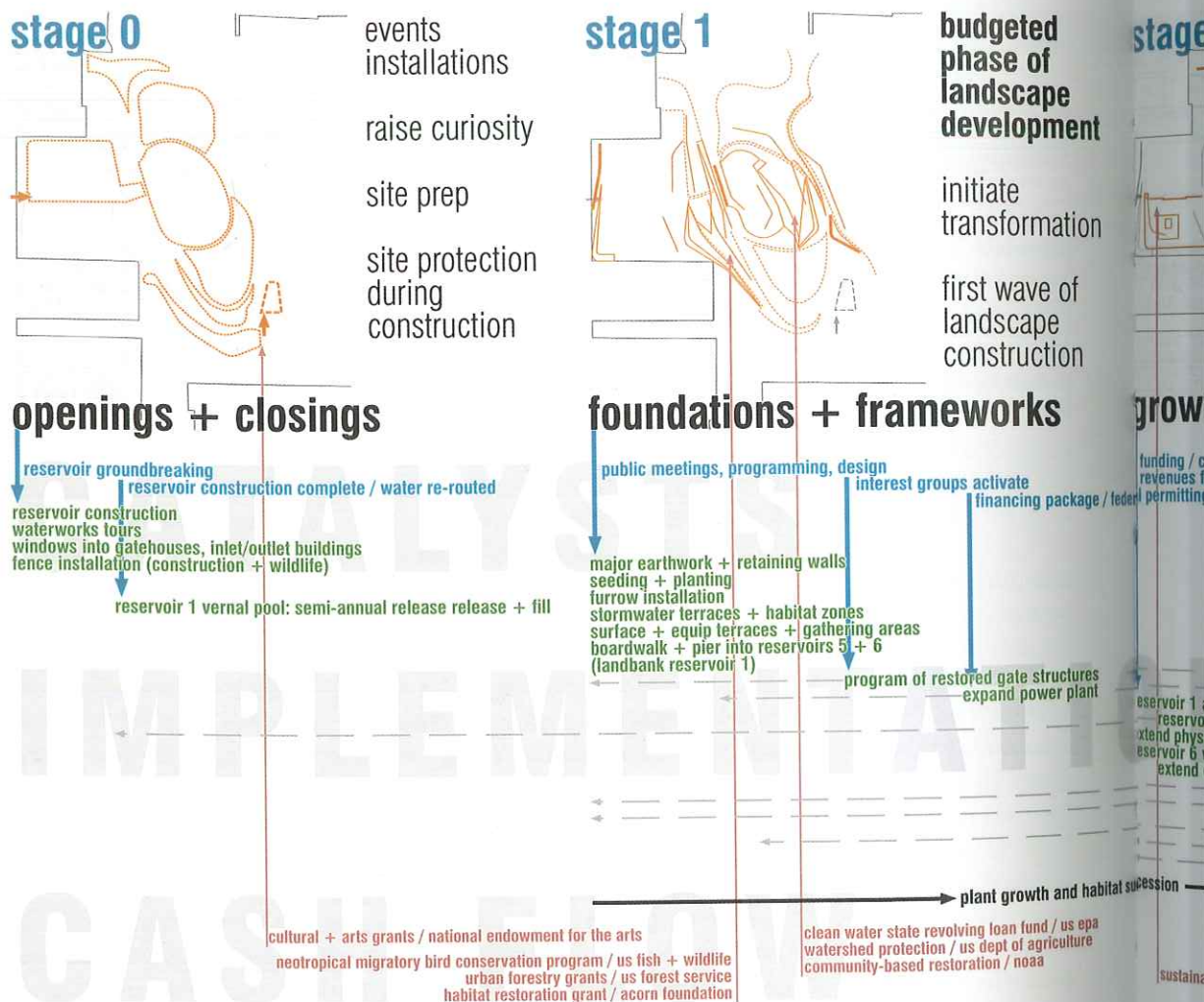
With this as a backdrop, I would like to offer four trends or tendencies emerging in design practices that have taken on these revised understandings of ecology and natural systems



as a basis for design strategy: structured, analog, hybrid, and curated ecologies.

*Structured ecologies* refers to the strategy of working with or alongside the stuff and processes of dynamic ecologies: the actual mechanics of how plants grow, behave, and adapt; the performance requirements of wildlife habitats; the movement and dynamics of the various waters present in a landscape. Like Corner and Allen and Lister, these strategies construct a set of physical scaffolds with varying conditions (low-high, wet-dry, sheltered-exposed) that can be appropriated over time by different plant communities impregnated on the site, and by different forms of wildlife. Such strategies anticipate a number of possible futures that may emerge specifically in response to a set of potential environmental changes (climate warming, sea-level rise, shifts in wind and moisture patterns,

Management framework, Mt. Tabor Reservoirs: Organization of project inputs, constructions, and feedback mechanisms allows for flexibility and adaptation over the long term.

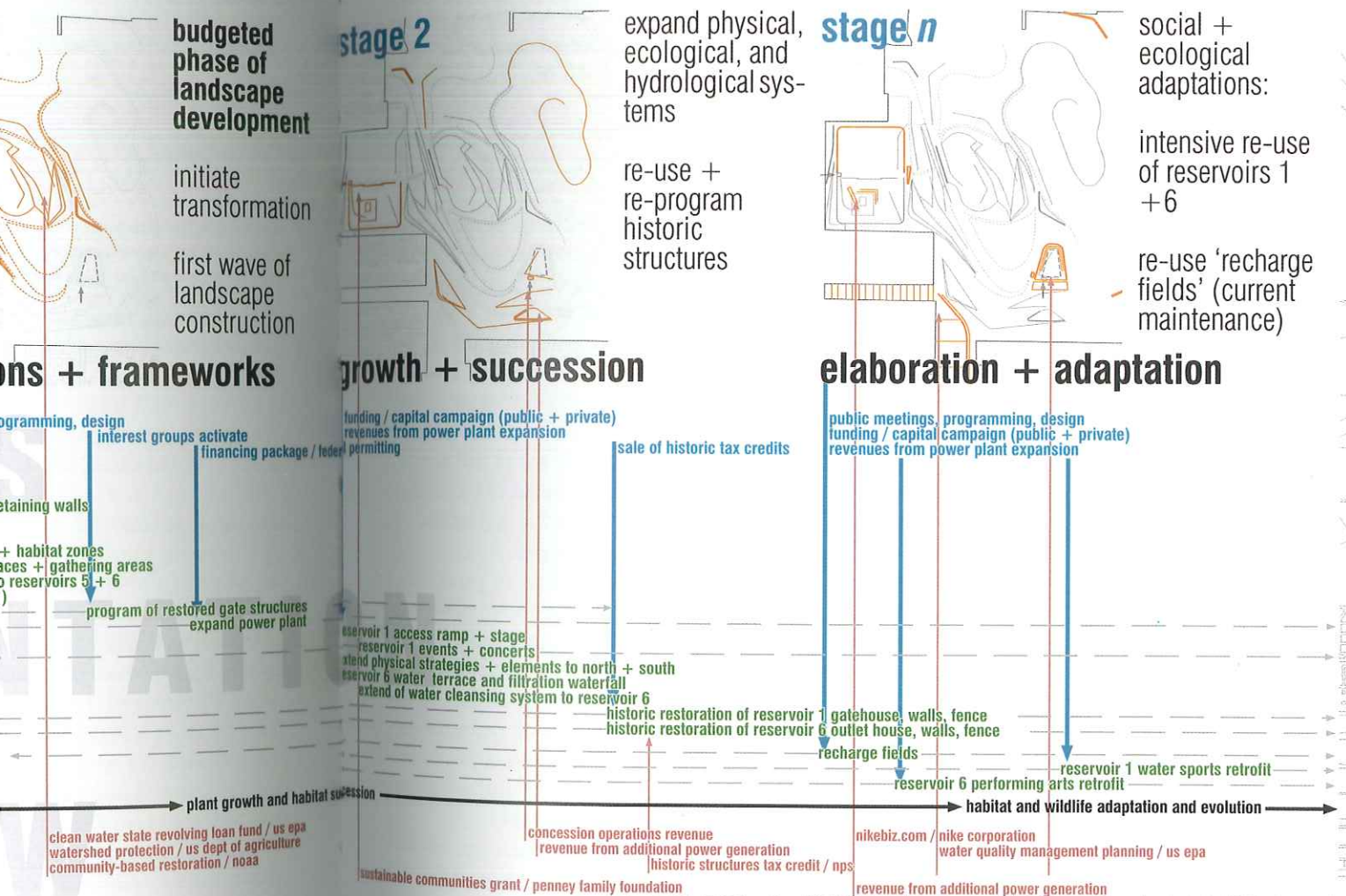


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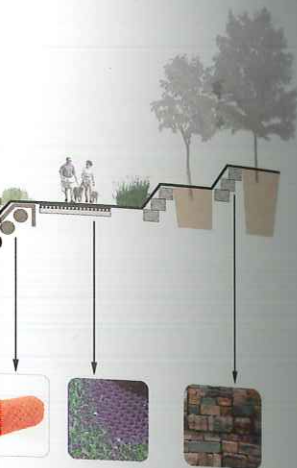
etc.)—in essence, a structuring of natural competition among  
plant communities in ways that will allow the larger setting  
and systems to respond, adapt, and be resilient to change.

*Analog ecologies* includes projects that attempt to model,  
analogously, the responsive behaviors of living systems in  
nonliving constructions or processes: the ability of living  
things—entire ecotones, individual organisms, human skin—  
to react to changing inputs and to adapt their nature to the  
new or revised condition at hand. In architecture, we might  
think of responsive skins such as Chuck Hoberman's "Adap-  
tive Fritting" project, a glass wall with movable fritted panels  
that changes as inputs fluctuate, creating shifting spaces/  
environments. In landscape, we might think of the design of  
flexible social spaces: physical scaffolds for the playing out  
of open-ended (but not unlimited) social and cultural—as









And in large-scale, combine the setting up of res-  
s; "if, then" scenarios; and  
for feedback loops, input,

development of responsive  
mental, engineering, and  
systems that engage both  
d forces. Such systems are  
they remain engaged with  
cs (rainfall and drought,  
ssion, etc.), but they put  
d elements into dialogue.  
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over a period of time. The  
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the idea is to structure  
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row and adapt.  
enerating force, an active  
ring of the city and in the

playing out of civic life—an agent that physically, mechani-  
cally, and constructively engages the various advanced tech-  
nologies, public policies, and social and cultural dynamics  
in play. In all of these, the appropriation of the mechanisms  
and resiliency and even the language of ecology and ecologi-  
cal systems—in their multiple forms and manifestations, as  
mechanisms and/or models—forms the basis for a newly  
charged set of design practices: flexible, responsive, and  
adaptable as projects evolve and accumulate over time.

1 See Ian McHarg, *Design With Nature* (New York: John Wiley & Sons, 1967/1992).

2 See numerous publications by Richard T.T. Forman, including *Land Mosaics: The Ecology of Landscape and Regions* (Cambridge: Cambridge University Press, 1995).

3 Among the many ecologists and essays that address or articulate this shift are Robert E. Cook, "Do Landscapes Learn? Ecology's 'New Paradigm' and Design in Landscape Architecture," Inaugural Ian L. McHarg Lecture, University of Pennsylvania, March 22, 1999, and Nina-Marie Lister, "Sustainable Large Parks: Ecological Design or Designer Ecology?" in *Large Parks*, edited by Julia Czerniak and

George Hargreaves (New York: Princeton Architectural Press, 2007).

4 Stan Allen, "Infrastructural Urbanism," *Points + Lines: Diagrams and Projects for the City* (New York: Princeton Architectural Press, 1999), 46–57.

5 See the full presentation of the scheme by Field Operations/Stam Allen + James Corner in *Case: Downsview Park Toronto*, edited by Julia Czerniak (Munich and Cambridge: Prestel and Harvard University Graduate School of Design, 2001). For a discussion of the competition brief and of the idea of scaffolding, see Kristina Hill's essay "Urban Ecologies: Biodiversity and Urban Design" in the same volume.