

Continuity of Singularities: Urban Architectures, Ecology and the Aesthetics of Restorative Orders

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Environmental designers employ ordering systems as a means of achieving spatial clarity and richness of organization while contending with the complexities that characterize design endeavors. This paper considers aesthetic potentialities when built and natural orders are considered together, specifically when an architectural investigation and ecological restoration are articulated as one integrated problem. After considering a range of approaches to the ordering the built and natural, I look to Gilles Deleuze and Felix Guattari's notion of 'continuity of singularities' as intimating an 'aesthetics of the indeterminate' that encourages a desired nuance, openness to the unforeseen and respect for the (ecologically) particular.

The German architect Guenter Behnisch encourages that,

Architecture should remain open for as long as possible; that it should not be isolated too soon from factors which are as yet unknown and cannot yet be known. Areas of freedom must be preserved; to give a chance to the things that fail to get the attention they deserve in our everyday lives, but still may mean more to us than those which in any case force themselves upon us.¹

With the urbanization of Oregon's Willamette Valley, some things that have failed to receive attention in our everyday lives include the slender salamander, northwestern pond turtle, tricolored blackbird, harlequin duck, and Townsend's big eared bat.² Here as throughout the world, habitats of specialist species have been degraded or eliminated as a result of urban development. This paper considers design processes and the configuration of architectural forms devised to help ensure the continued viability of such species, the synergies between aesthetics

1. Guenter Behnisch quote from a lecture at the University of Oregon in spring 1990.

2. See the Oregon Natural Heritage Information Center of the Institute for Natural Resources at Oregon State University's *Rare, Threatened and Endangered Species of Oregon*, May 2004.

and ecology achievable through such efforts, and the philosophical implications of such engagement. The paper draws insight from a university-level architecture studio focused on a mixed-use development on a Portland, Oregon, brownfield site adjoining a major regional creek, with a problem statement to create resourceful human habitation *and* to restore non-human habitat through the establishment of wildlife corridors in a landscape currently fragmented.

The landscape architectural theorist Marc Treib suggests, “The co-presence of the so-called natural and the so-called man-made leads to a feeling or an aesthetic preference which is different from, and usually greater than, the presence of either one of these orders alone” (Treib 1979, 29). Short of affirming this statement definitively, we might speculate as to aesthetic prospects of the co-presence of the natural and man-made by setting up a problem in which habitat regeneration becomes a formative aspect of an architectural enterprise. With the project under consideration, the *specifics* of the deployment of *ordering systems* raise compelling questions about the aesthetic interface of architecture and ecology. How for example might a ‘built’ ordering system such as a grid of columns correspond to a landscape ecological ordering system such as a stormwater collection network or a series of finger-like habitat corridors? How might such relations contribute to aesthetic experience and ecological integrity?

With the above comments I assume unproblematic, transparent relations between a designer’s inclinations and stratagems, the elements the designer proposes, what is built, and the eventual aesthetic experience of the inhabitant of the project in question. But certainly gaps form between design intention, execution, and (aesthetic) perception, their breadth depending on many factors including the sensibility of the designer, skill of the builder or restorer, and an occupant’s interest in design. Nevertheless, we must assume bridges cross the gaps to link these acts and proceed, supported as we are in a recognition of near universal efforts to devise, express, and materialize orders so as to enrich human experience and understanding.

Modes of Engagement

Even the most green-minded architects often presume that the task before them is primarily if not exclusively that of designing a building. The focus of ‘ecological design’ is building performance, and seldom are problems of design, and the graphic representations used to investigate those problems, extended meaningfully to the larger physical context. Yet when the prospect is enlarged, designers are invited to imagine new realms of inquiry, how architectural configurations for example might anticipate restoration of natural systems so as to foster biodiversity. Several strategies of extension might include: (1) collaboration with professional ecologists and the formation of interdisciplinary design teams, (2) exposure to the poetics and principles of landscape ecology as a means of inspiring initial, formal design explorations, where both built and natural features are given expression (see images 1–3), (3) adopting a ‘program’ of spatial requirements that includes not only architectural elements (as is customary) but also

ecological spaces such as core habitat areas and corridors, and lastly (4) developing inhabitant profiles and ‘life histories’ of both likely future residents of a building complex *and* desired future ‘occupants’ of restored habitat, be it forest, wetland, or stream.³ As a result of this groundwork, designers are equipped to develop a project not solely as a constellation of object-like structures, but as built “footprints” that promote ecological connectivity, and rehabilitated vegetative networks that positively impact the quality of life of the (human) residents.

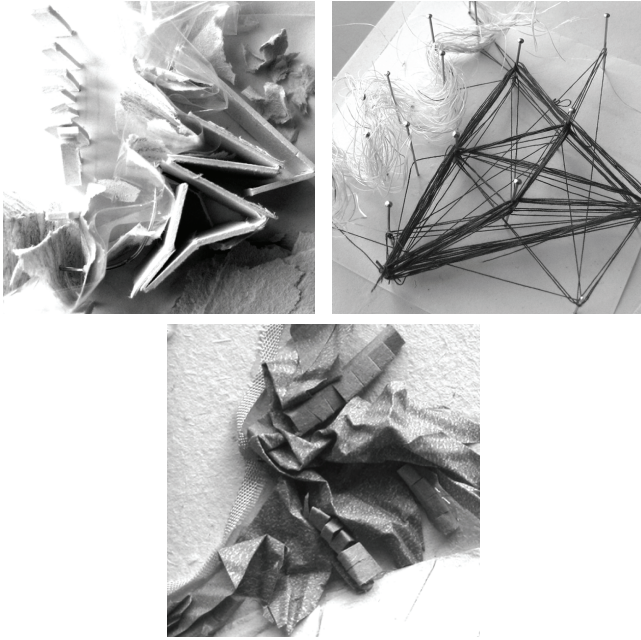


Figure 1 “Metaphorm” preliminary sketch model studies from L to R: “Folds Along Waterpockets” (Brian Starkey); “Peninsular Interdigitation” (Brian Starkey); “Pleats in Green Wedges” (Katie Boyd).

3. For a consideration of the relationship between principles of landscape ecology and poetic, metaphorically-based design explorations, see Muller (2007).



Figure 2 Inhabitant profiles for the mixed-use/mixed riparian hardwood studio project (by Luke Gray).

Identity of Orders: Degrees of Interdigitation

Between nature and man form intervenes. (Focillon 1992, 124)

Students' initial and instinctual attitudes about form-making offer a range of approaches to the patterning of elements deployed on site, to the rhythm and cadence of interaction of built and natural orders. One strategy assigns the built and natural to distinct realms, where wildlife habitat cores are pushed to the perimeter of the site, providing a clearing for housing, commerce, parking, and recreation. As the ecologist consultants recommended, portions of the site are to be made inaccessible to people, so as to protect sensitive and threatened species such as neo-tropical migratory birds. Such segregation is prevalent in current planning bylaws, building codes and scientific endeavor ("structures are not permitted within 100' of the stream embankment"; "as protected under the endangered species act . . ."), is rooted in the most basic of human enterprise, and ground expression in numerous and celebrated endeavors in contemporary art and architecture. The abstractly "white" and orthogonal residential projects of the New York Five architects in the 1970's, standing in sharp contrast to surrounding fields and woods, provide perhaps the most explicit and dramatic examples of this attitude.⁴

At the other extreme are efforts to achieve significant "interdigitation" between built and natural realms, where living (green) roofs serve as stepping-

4. The New York Five are Peter Eisenman, Michael Graves, Charles Gwathmey, John Hejduk and Richard Meier, in hindsight highly unlikely company.

stone corridors for various avian species and where “rainscreen” facades provide habitat for cavity dwellers such as kestrels. For many sensitive species, life in close proximity to development would be intolerable, yet numerous species would flourish under these conditions, and humans would have day-to-day contact with the wild, a condition Kellert, Stilgoe, and others would argue as critical to our self-identity and quality of life (Kellert 2005, Stilgoe 2003). Brownfield sites in particular present unique opportunities to move beyond codes that separate human activity and natural systems; several students in the studio for example explored using foundation walls of structures built within the riparian setback zone to help reestablish and provide shade for refugia, side channels and eddies for aquatic species to retreat to during major rain events and increased creek flow. And as with segregated schemes, countless precedents for extending architectural forms into the landscape offer themselves; the work of Frank Lloyd Wright immediately comes to mind, characterized in so many instances by horizontal planes emanating from a central hearth and extending fluidly into the surroundings. Yet with Wright and for most ‘integrated’ precedents, ecological considerations do not appear to drive decision-making, and the ‘movement’ of elements tends to be unidirectional, from building to landscape.

Most schemes attempt intermediaries—punctuated gradients, probes and “sifts,” where distinct realms are created for specialist species and for humans, yet where built and natural entities extend selectively, tendril-like, one into the other. Here the insufficiencies of a discussion limited to “built” and “natural” become apparent; the extent of desired congruity will depend greatly on the nature of architecture (use) and the nature of nature (types of habitat and species). In the case of the studio, working with a site of very low ecological value, synergies of integration are more achievable than they may be in with other projects in other settings that pose greater incompatibilities, where for example development extends into core habitat at the urban frontier.⁵ And of course the scale observed greatly influences perceptions of degrees of integration. If at the site scale both architectural and ecological entities are included yet demarcated sharply, and with numerous projects in an urban district organized along similar lines, an aerial vantage would reveal a level of integration perhaps never before achieved in the city!

5. For a thoughtful account of incompatibility between built and natural orders, see Lindgren (2007).

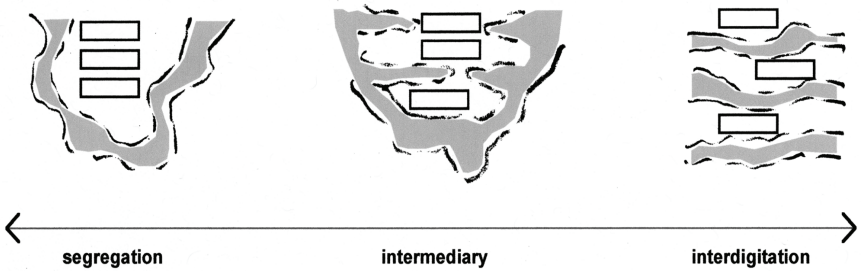


Figure 3 Gradient of ‘interdigitation’ between built and natural orders (spectrum of interaction).

Consistencies and Inconsistencies of Orders

Any element, a bit or a piece, does not exist free; it will always be related to other bits or pieces of the same kind and those of other kinds. Meaning is not inherent in a single bit, but fixed by its relationship to others. (Treib 1979, 32)

Individuals must become more united and increasingly different. (Guattari, 69)

Assuming a thoughtful position between extreme segregation and integration, how consistent should the relationship between built and natural orders be (or between sub-orders within these)? Should we promote flowing, landscape-like building forms closely synchronized with their surroundings, an approach that holds great currency in contemporary architectural circles? In other words, do building orders naturalize, where, as the art historian Wilhelm Worringer has declared of artistic movements of the past, “the linear-inanimate, the primary phenomenon . . . was then refashioned in the direction of organic aliveness and so gradually came to resemble a natural model” (1997, 75)? Or do natural orders concretize by aligning with the urban architectural grid? Is there an effective compromise, where each order shifts a little towards the other? Or might we even contemplate an inversion of orders and with Focillon celebrate “this delightful emulation and this interest in transpositions—which seeks the artificial at the heart of nature and the secret labor of nature at the heart of human invention” (1992, 98)?

What of the metaphor/model of the *mobius strip* as a clue to reciprocity of order, so described by David Wood as allowing

for the idea that radical opposition can be combined with deep ontological continuity: at every point two sides but one surface. This gives us a beautiful way of representing man’s relation to nature—opposed, in some sense, and yet at the same time continuous. (2006, 44)

Beautiful yes (!) but does it not also point to the constraints of the primacy of our dualistic model, positioning humans too singularly as/on the “other side of nature?” Have we forgone the specificity of observation of natural conditions our ecologist consultants encouraged? With von Uexküll’s ‘phenomenal self-worlds’ in mind, might there not be numerous (countless) mobius strips, with newt on the one side, nature on the other, Chinook on one side, nature on another, etc. (von Uexküll 1926)? But does multiplicity implode the concept of opposed continuousness?

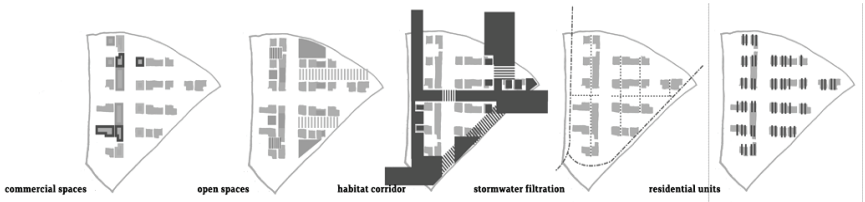


Figure 4 Anna Hook and Heather Rusch’s site plan diagrams for their “consistently interdigitized” scheme, where natural orders align with the grid.

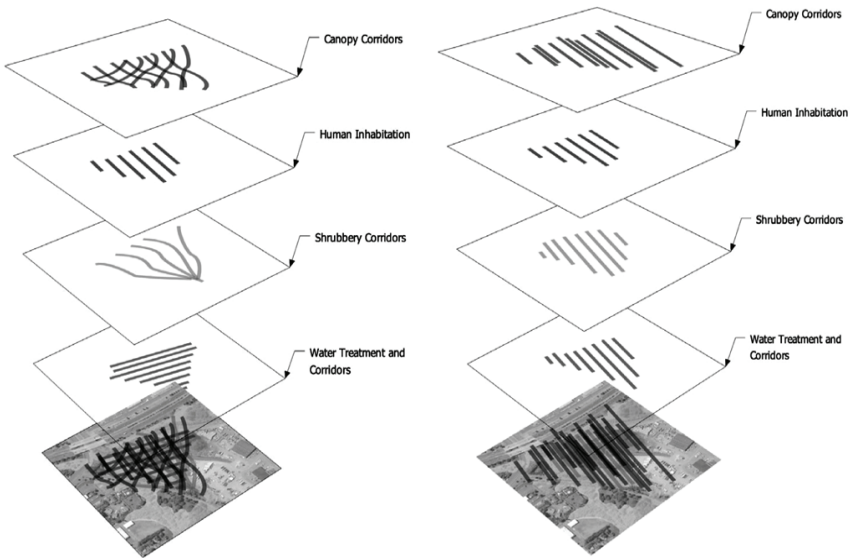


Figure 5 Study of inconsistent (L) and consistent (R) ordering relationships amongst project elements (by Lucas Gray).

One promising, nuanced approach for ordering that translates across the particularities of built and natural—and that is less directed toward emulation, transposition, or opposition—would involve collage-like superimpositions of quasi-autonomous sets or sub-sets: a set of understory communities, a subset of paths, a

building façade subset, etc. Increments are fine and numerous. Each set is singular, corresponding to its own needs and properties, and is made of elements that operate *consistently* relative to other elements that make up the set, such that it is discernable that the elements comprise the set. Sets are related to one another in an *inconsistent* manner, as the dynamics of their trajectories differ, creating a “play of juxtapositions” between elements corresponding to different sets. As such, **individual elements assume singularity** despite belonging to a set, precisely because they have a different nexus of relationships with individuals of other sets in comparison with others of its own set. Sets and individual elements in a set can affect the identity and functioning of other sets (a water collection system for example, playing a connective role between buildings, swales, and riparian cores, influences the elements it engages), but not to the point that sets are extended or deformed beyond their capacities. As an aggregate, it is not simply that “richness exists in the experience of subsets” but in the experience of richly interwoven coincidences of individual elements corresponding to different sets (Treib 1979, 32).

Such orientation resonates with Gilles Deleuze’s notion of “continuity of singularities,” of the understanding that “although they are not continuous, singularities belong fully to continuousness” (Deleuze 1993, 20). Orders demarcate sets and subsets at the same time they serve to coalesce. And though inconsistencies and interruptions between orders implied above are not of a Baroque sensibility, one finds congruence between this way of thinking and Deleuze’s theoretical explorations in *The Fold*, where “the really distinct is neither necessarily separate nor separable, and the inseparable can be really distinct” (55–56). Together, Deleuze and Guattari address specifically the singularity of ecological subsets and the polyphony of the ecological ensemble:

every territory encompasses or cuts across the territories of other species, or intercepts the trajectories of animals without territories, forming interspecies junction points. It is in this sense that, to start with, Uexküll develops a melodic, polyphonic, and contrapuntal conception of Nature. (1994, 185)

With this outlook, the nature of one system (the façade of a building for example) is celebrated as decidedly different from the nature of another (a camas prairie for example), and the two (and many more) orders can coexist, engage selectively, and thrive. In some instances members of different sets come into physical contact and provide mutual support. Conversely, elements of the same set may never touch, but there is connectivity and continuity all the same, as with the branching of oaks or the spacing of columns. What is important is that relationships between elements constituting different sets, and relationships between complete sets, produce spatial asymmetries. Some systems stretch and scatter, others clump or swarm. We become attuned to the manner in which sets operate at different frequencies, and to the formation of vortices and disturbances as sets meet. Their various trajectories generate a multiplicity of spatial conditions, read

as a **continuum as an incomplete whole**, like “speed approaching that of alternating current, so that alternation is sensed as a single continuous perception” (Treib 1979, 37).

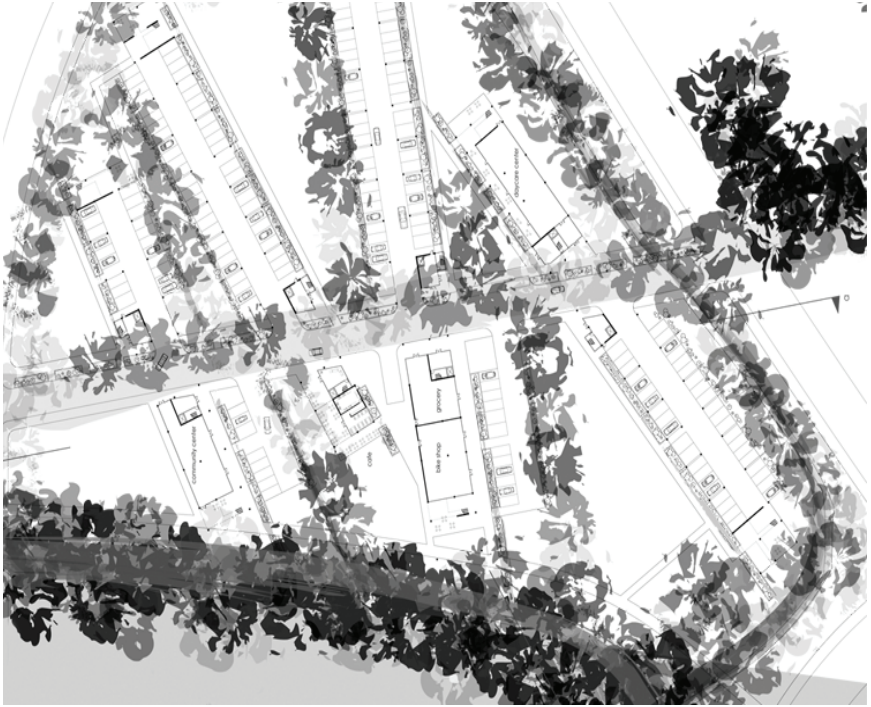


Figure 6 Jeremy Webber and J Ho Lee’s site plan for the mixed-use development scheme, suggestive of a ‘continuity of singularities’ attitude to ordering.

Perhaps the greatest advantage of this approach is its openness in the face of the inevitable “factors which are as yet unknown” that instigated this essay. ‘Continuity of singularities’ implies a situational approach to design, where unpredictable eventualities are contended with effectively, even welcomed. Far into a design project the client or fire marshal asks that a new condition be satisfied; the architect incorporates this request as a new ‘layer’ or system with a willingness in sharp contrast to a more pure aesthetic approach where the unforeseen threatens order. For Behnisch and Partner Architects in Stuttgart, openness is representative of a contemporary, pluralistic German society, operating in strong and optimistic contrast to the homogenous monumentality that epitomized darker times in the nation’s history. Each set that comprises a work of architecture is singular; the sets can be of a pure geometrical order such as column grid (especially a column grid given the structural engineers desire to predict behavior in distributing and carrying loads), but they can also be relatively free. The class-

rooms of Behnisch's Saint Benno School in Dresden are, given budget and function, highly rational rectangular volumes (light-filled, gem-like boxes). But the boxes are arranged informally relative to one another—they do not cohere into a gridlike pattern and instead “dance,” and the residual space that forms between them and the blue multistory wall that protects the school from the busy adjacent street takes on a landscape-like character, widening and narrowing, offering unexpected, oblique views of the protected garden.

The ‘loose’ yet rigorous ordering systems that Behnisch and Partner deploy, the exploratory, animated forms and fingerlike extensions, anticipate a more encompassing approach, one that includes additional overlays (orders) emanating from the landscape. As these are pursued and represented, rather than assuming as with the environmental philosopher Allen Carlson that “the natural environment . . . has a certain openness and indeterminateness that makes it an unlikely place to find formal qualities,” perhaps indeterminateness provides the very basis for the formal qualities we seek (2000, 37). Working with ecologists, designers can hypothesize as to what dynamics might operate in a particular setting, and encourage these through the introduction of open-ended organizational structures. Such structures, planned, provisional, and scaffold-like, offer aesthetic resonance as they give way, become obscured, or undergo metamorphosis as plant and animal communities find purchase. Weak forms exist, and they can be highly desirable (Muller 2004, Sola-Morales 1997).

Towards Singular Eonstructions

The metaphor of adaptation, while once an important heuristic for building evolutionary theory, is now an impediment to a real understanding of the evolutionary process and needs to be replaced by another. Although all metaphors are dangerous, the actual process of evolution seems best captured by the process of construction. (Lewontin 2000, 48)

The demands of singularity are rising up almost everywhere. (Guattari 2000, 31)

“Eco-revelatory” design refers to a movement in the field of landscape architecture that endeavors to make visible and express ecological processes. In a special issue of *Landscape Journal* devoted to eco-revelatory design, the editors suggest that “by variously highlighting the particular ecological relationships at any given site, such design can punctuate and enliven our environment and sensitize us to what is known about its interlocking complexities” (Brown, Harkness and Johnston 1998, x). While ecological systems are interrelated and complex, with many species’ interactions exhibiting a dovetailing or interlocking quality, for many others the patternings are more open-ended, networked, and less consistently enmeshed. Further, when speaking of singular orders and continuous fragmentary wholes, our concern is less a strict revealing of ecological processes and

more the expression of the manner of revealing, of the aesthetics of our comportment and sensitive commitment in affecting these processes.

The architect Rem Koolhaas, in speaking of the Melun-Senart competition for the design of a new city outside of Paris, offers detailed reflection on the process his design team went through,

We started to ask ourselves whether there was a new technique, a way of working with this weakness and incompetence, a potential to reverse the situation, whereby we could no longer claim that we could build a city, but could find elements with which we could nevertheless create a new form or urban condition. We were not so much thinking about what we could build as analyzing the situation to determine where we could under no circumstances build.

To enjoy the forests, we decided not to build on the edges to the north and south. Between them was as superb zone of landscape with a smaller number of forests that French Kings used to chase deer from one forest to another and then shoot them in between, so we decided not to build there. We acquired by this systematic series of eliminations a kind of Chinese figure where we would make a statement about certainty – we are not going to be building here and we are not interested in building here. As we controlled this system of void spaces or landscape spaces, we systematically and enthusiastically abandoned any claim of control over residual lands and thought they would probably turn into what the French call “merde.” The more sublime quality of the green spaces, in contrast, might give us a new conception of the city, a city no longer defined by its built space but by its absences or empty spaces. (Koolhaas 1996, 333–34)

I admire Koolhaas’ experimental, swiss cheese approach to protecting green space in making the city; ‘islands’ are preserved and become formative; designers relinquish control over every aspect of the physical environment. Yet his “statement about certainty” is highly dubious from the perspective of a landscape ecologist. Koolhaas leaves patches of isolated habitat where species face a highly uncertain future. Once shot by the arrows of kings, deer bounding to nearby patches will now get run over. Rather than choosing not to develop within remnant islands, and informed by landscape ecology, our charge is to recreate landscape structures in urban settings that are robust in their connectivity, formally indeterminate, and encouraging of biological complexity. We embrace the constructivist agenda implicit in David Wood’s ‘econstruction’ with responsibility and optimism, countered by uncertainty as to the success of our endeavor. Orders of magnitude less ambitious than a continental wildlands initiative, we hope our projects become stepping stones, catalyzing future efforts by anticipating healthy urban ecosystem networks (see Foreman 2004).

Ordering systems characterized by openness and ecological specificity can influence positively the restoration of natural systems, allowing us to respond to the distinct habitat needs and life histories of specialist species. Designers are called upon to develop workable separations, buffers, and linkages. The life cycle

of the endangered western pond turtle, not typically a concern of the architect (unless legal action is being taken), can be introduced as a spatio-temporal set, increasing both the viability of the species and the richness of the transcript of our orders. We do this for pond turtles and for ourselves, for prospects of unmediated experience of the wild in urban environments, a drawing back so as to allow the reemergence of that which we do not control, and, thinking like birds and mountains, for the possibility of giving “birth to new modes of existence, closer to animals and rocks” (Deleuze and Guattari, 74–75). Through such a melody or style, an aesthetics of restorative orders, at once playful and deadly earnest, we refrain from answering definitively what constitutes aesthetic experience and instead remain open to aesthetic constructs as they suggest themselves in our encounters with urban nature.

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