AN EVALUATION OF ECO-REVELATORY DESIGN

by

BENJAMIN LIVERMAN

(Under the Direction of Pratt Cassity)

ABSTRACT

In August 1997, a group of landscape architects began preparations for an exhibition on "eco-revelatory design." From this they hoped to promote and evaluate what they claimed was an emerging field in landscape architecture.

Eco-revelatory design is "landscape architecture that reveals and interprets ecological phenomena." It highlights the aspects of a site that are invisible or overlooked by designers and the public in the hope that this will enliven the site, make people more aware of its complexities, and promote ecological awareness.

Now, almost ten years after the exhibition, this thesis examines eco-revelatory design: some of its projects, its criticisms, many of its basic assumptions, and its evolution. By reviewing early works, criticisms, and later works of eco-revelatory design this thesis questions the assumptions eco-revelatory designers make, and traces the evolution of the practice. Hopefully, this will provide a snapshot of where eco-revelatory design currently stands, and where it might go in the future.

INDEX WORDS: Eco-revelatory Design, Ecology, Landscape Architecture, Land Art, Reveal, Ecological Design, Avant-Garde

AN EVALUATION OF ECO-REVELATORY DESIGN

by

BENJAMIN LIVERMAN

Bachelor of Arts, University of Montevallo, 2001

A Thesis Submitted to the Graduate Faculty of The University of Georgia in Partial Fulfillment

of the Requirements for the Degree

MASTER OF LANDSCAPE ARCHITECTURE

ATHENS, GEORGIA

2007

AN EVALUATION OF ECO-REVELATORY DESIGN

by

BEN LIVERMAN

Major Professor:	Pratt Cassity
Committee:	Eric MacDonald David Berle Jennifer Perissi

Electronic Version Approved:

Maureen Grasso
Dean of the Graduate School
The University of Georgia
May 2007

TABLE OF CONTENTS

LIST OF TABLES

Page

Chapter 1

Introduction

In August 1997, a group of landscape architects interested in a type of landscape design that they called “eco-revelatory,” began compiling and organizing a body of such work into an exhibition that would take place the following year. From this they hoped to promote and evaluate what they claimed was an emerging field in landscape architecture.

The exhibition would focus on works that fell between the strict analysis based approach of ecological design, and the design-heavy, avant-garde sector of landscape architecture. They saw eco-revelatory design as a possible way of bridging what they claimed were two polar ends of the profession, and hoped that eco-revelatory design would become a middle ground between the two. It would incorporate the expressive, imaginative design language—normally reserved for the avant-garde side of the field—to promote ecological awareness. It would highlight the aspects of a site that were normally invisible or overlooked by designers and the public in the hope that this would enliven the site and make people more aware of its complexities.

These hidden aspects could be ecological, involving processes such as stormwater or fire systems; or they could be cultural, for example highlighting and celebrating ethnic practices or exposing urban infrastructure. Most often, however, they were a combination of both, and focused on the relationship between cultural and ecological aspects in the environment. To use one project as an example, a designer focused on the movements of polluted groundwater, and its threat to a nearby city. This involved both an ecological process (groundwater movement) and the fallout of a cultural practice (pollution caused by strip mining). The designer worked to find

both biological and technical ways to treat the problem, and designed the whole scheme in a way that would highlight and make the public aware of the cause, the current state, and the treatment of the problem. [1]

By exploiting the ability of design to accentuate, emphasize, reveal, and arouse the public's interest, the creators of the exhibition hoped that eco-revelatory design would give people an appreciation for the complexities of not only nature, but also the relationship people have with it, and the impacts of each system—ecological and cultural—upon the other. By accomplishing this, eco-revelatory design hopes to raise the baseline of knowledge from which people appreciate, evaluate, and make wise decisions about their environment.

Now, almost ten years after the exhibition, this thesis examines eco-revelatory design: some of its projects, its criticisms, many of its basic assumptions, and its evolution. First, this thesis will review the 1998 exhibition and its subsequent publication in *Landscape Journal*, "Eco-revelatory Design: Nature Constructed/Nature Revealed" to examine individual works within the exhibition and the criticisms and recommendations published alongside them. This will provide a clear definition of eco-revelatory design, and the various forms it might take. A chapter then examines thoughts, criticisms, and recommendations published since the exhibition. Then this thesis will follow with an examination of the questions these critics raise about eco-revelatory design, specifically: whether or not eco-revelatory design must ecologically improve a landscape; a discussion of stylistic methods for implementing eco-revelatory design; and an examination of whether aesthetics might relay information that may be translated into a sustainable ethic. Finally, this thesis examines eco-revelatory designs completed since the 1998 exhibition to determine how and if eco-revelatory design has evolved, and how it has responded

[1] Kristina Hill, "Ring Parks as Inverted Dikes," Landscape Journal (1998).

to landscape critics. This will involve a review of *Landscape Architecture* magazine and specific eco-revelatory designs, articles and critiques, and an examination of the writings of designers, landscape critics, and aesthetic philosophers.

Methodology for Evaluation:

In order to evaluate works of post-exhibition eco-revelatory design, a working definition of eco-revelatory design has to be cemented. Eco-revelatory design's definition, as written in the opening pages of the 1998 *Landscape Journal* publication, "landscape architecture that reveals and interprets ecological phenomena," is rather broad. For example, a designer, through the creation of a French parterre or a parking lot, may reveal ecological phenomena that an ecologist may read. However, to the uninformed visitor these revelations may be impossible without more obvious visual or verbal prompting. From an examination of the exhibited projects, and the praise, criticism, and recommendations of the essayists, this thesis narrows the criteria for eco-revelatory design. It asserts that works should not just express aspects of a site that give people a better understanding of the ecological processes and/or a better understanding of the connection between human practices, infrastructure, and the environment. Projects will only be considered whose form is generated by the phenomena and the processes the designer wishes to reveal, *and* by the desire to consciously communicate these processes to the public. Therefore works that hide infrastructure, or focus more on visual representation of a set image instead of presenting the functional purpose of a site were not considered.

Projects reviewed were limited to those published in *Landscape Architecture* magazine. This study was limited to those projects that were built, not just proposed. In addition, this thesis evaluated only projects that were not already published in the 1998 *Landscape Journal*

publication. Finally, this thesis will be limited to those works published between 1999, the year following the exhibition, and December of 2006.

Evaluation will be formed around two themes. The first will attempt to gauge eco-revelatory design's performance based on its adherence to recommendations set by essayists and post-exhibition critics. The second will use Robert Thayer's set of continuum, discussed in chapter two, to evaluate the way in which eco-revelatory design has grown since the exhibition and to see if it has had any sweeping change in focus from the earlier projects.

By reviewing early works, criticisms, and later works of eco-revelatory design this thesis questions the assumptions eco-revelatory designers make, and traces the evolution of the practice. Hopefully, this will provide a snapshot of where eco-revelatory design currently stands, and where it might go in the future.

Chapter 2

The Exhibition

In September 1998, the University of Illinois at Urbana-Champaign opened an exhibition entitled *Eco-Revelatory Design: Nature Constructed/Nature Revealed*. That same fall, a special issue of *Landscape Journal* was published devoted entirely to the exhibition. It concentrated on the theme of eco-revelatory design, the individual works submitted to the exhibition and the essays on the exhibition from a select group of invited critics.

The curators responsible for the exhibition—Brenda Brown, Terry Harkness, and Douglas Johnston— thought eco-revelatory design could counter a stagnancy that they saw in ecological design and a polarization between art and ecology in the profession of landscape architecture. They also wanted to explore ways that landscape architecture could be more legible in a gallery.[2]

The curators thought that while ecological design in its various interpretations has made a positive impact on the profession of landscape architecture, it has often avoided transparency and "eschewed the sort of representation, abstraction, and symbolism traditionally associated with gardens." Conversely, they claimed, those designers who advocate transparency or pursue symbolic expression and "a sophisticated 'art' aesthetic have tended to neglect serious grappling with ecological issues."

In addition, the curators wanted to shift the focus of ecological design away from the preservation or re-creation of ecologically pristine sites. They recognized that ecological

[2] Brenda Brown, Terry Harkness, and Doug Johnston, "Eco-Revelatory Design: Nature Constructed/Nature Revealed: Guest Editor's Introduction," Ibid.

processes are at work in disturbed settings as well, and advocated "a design that reveals and interprets ecological phenomena, processes and relationships—what [they called] eco-revelatory design."[3]

For the purposes of their project, the curators defined ecological design as "that which considers issues attendant to the interactive processes and dynamic balance among organisms and their environment." Eco-revelatory design represents a belief that highlighting certain aspects of a site will enliven the site and make people more sensitive to its complexities. It asserts that by making one see and comprehend environmental phenomena and processes, one will be better able "to appreciate, evaluate, and make wise decisions concerning them."[4]

The curators recognized that this was an untried theory. However, they supported it in the belief that combining symbolism, abstraction, and representation into ecological design could make the ecological aspects of a work clear and legible. This, they claimed, would be an opportunity for designers to be both stewards and artists.

The special issue of *Landscape Journal* opens with a page in bold print announcing the ability of landscape architects to construct nature through their interventions and interactions with ecological and cultural systems. In a statement to sum up the intent of the exhibition the curators write:

"Designers' strategies have to do with how we see and experience as well as with what we see and experience. Designers envision and plan *new uses* of landscapes, out of which arise *deeper caring* for the interactive life and processes within them. They preserve, restore and introduce *signifying features* in landscapes that speak for natural and cultural processes that might otherwise remain invisible. They *expose infrastructure*

[3] "Contributors," *Landscape Journal* (1998). x.
[4] Ibid. x.

processes customarily hidden. They *reclaim* landscapes so that the past is *remembered*, even as nature, culture and their interactions are recast and *revived* for present and future. They *change perspectives* by structuring how we interact with landscapes as well as by structuring the forms and processes of landscapes themselves. In these landscapes, both nature and how we see nature are dynamic."[5]

In short, landscape architects accentuate, emphasize and reveal. In this exhibition the focus was on the designers who use these talents to promote a better understanding of how design can work with and affect ecological and cultural processes.

Project Descriptions:

To promote eco-revelatory design the curators created an exhibition to be held in three locations from September 28, 1998 until October 15, 1999 accompanied by a special issue of *Landscape Journal*. The focus of the exhibition was on landscape architecture "intended to reveal and interpret ecological phenomena, processes and relationships."[6]

Designers' entries could be either built or proposed work and exhibitors were encouraged to create presentations that were clear, legible, communicative, and capable of being understood by both designers and nondesigners. To support these goals, works were chosen on overall quality, as well as their probable legibility and aesthetic appeal to nondesign professionals.[7]

In all, there were fifteen accepted design works and eight essays. Works were due a year before the opening of the exhibition to allow time for photographing, the preparation of the *Landscape Journal* special issue, and for essayists to visit and critique the works.

---

[5] Brenda Brown, Terry Harkness, and Doug Johnston, "Eco-Revelatory Design: Nature Constructed/Nature Revealed: Guest Editor's Introduction," Ibid. xvi.
[6] Ibid. xii.
[7] "Contributors," Landscape Journal (1998). xi.

This period also gave the curators time to evaluate and group the works for publication. Groups were based on the dominant revelatory strategies that the designers used. The six groups and their projects were:

Table 1.1 Abstraction and Simulation

Group One: *Abstraction and Simulation*	Two computer-based models, one used to reveal the aspects of a site normally invisible and the other to test different methods of management over an extended time scale.
1) "TRACES: Revealing Nature through Models of Landscape Dynamics," by Douglas Johnston with Wes Reetz.	
2) "Fire Dynamics in the Yellowstone Landscape from 1690 to 1990: an Animation," by David Kovacic, Alan Craig, Robert Patterson, William Romme, and Donald Despain.	

Table 1.2 New Uses, Deeper Caring

Group Two: *New Uses, Deeper Caring*	Dealt with entries that focused on re-use and new management of existing sites.
1) "Windows of Opportunity: Reprogramming Residual Urban Space," by Achva Stein and Norman Millar.	
2) "Glenn W. Daniel King Estate Park Master Plan," by Louise Mozingo with Ann Baker, Jonathan London, Nicholas Ancel, Iris Cheng, and Masato Dohi.	

Table 1.3 Signifying Features

Group Three: *Signifying Features*	Centered on designs that focused on a particular aspect of a site.
1) "Urban Ecological Retrofit," by Joan Iverson Nassauer with photographs by Chris Faust.	
2) "Hattiesburg Lake Terrace Convention Center," by Edward Blake.	
3) "Watermarks at the Nature Center," by Richard Hansen.	

Table 1.4 Exposing Infrastructure Processes

Group Four: *Exposing Infrastructure Processes*	Three submittals focusing on stormwater.
1) "Stormwater Gardens (Convey, Capture and Reuse: Stormwater)," by William Wenk and Billy Gregg.	
2) "Urban Grass Waterways: Rethinking Stormwater Infrastructure in the Anacostia River Watershed," by Joseph Eades.	
3) "Wet Lands: Civic Stormwater + Contingent Spaces," by Kathy Poole.	

Table 1.5 Reclaiming, Remembering, Reviving

Group Five: *Reclaiming, Remembering, Reviving*	Focus on three projects that deal with ecological problems occurring from industrial action
1) "Soil that New York Rejected and Re-collects," by Anuradha Mathur and Dilip da Cunha.	
2) "Ring Parks as Inverted Dikes," by Kristina Hill.	
3) "Testing the Waters," by Julie Bargmann and Stacy Levy.	

Table 1.6 Changing Perspectives

Group Six: *Changing Perspectives*	Two sites that try to reveal and build appreciation for hidden aspects of a landscape, and test different management strategies. This final group is separated from the first group in that it eschews computer technology for more conventional representation methods, and in that it includes two design proposals (one partially constructed) while the first group included a virtual world and an analytical study of different management strategies.
1) "Foothill Mountain Observatory: Reconsidering Golden Mountain," by Terry Harkness.	
2) "HORIZONS Revealed and Constructed," by Margaret McAvin and Karen Nelson.	

The following is a brief description of each, in order of their listing in the *Landscape Journal* Special Issue.

Group One: *Abstraction and Simulation*

1) "TRACES: Revealing Nature through Models of Landscape Dynamics," by Douglas Johnston with Wes Reetz.

Johnston and Reetz used computer technology to create "a virtual, and malleable landscape of earth and water based on a 25-kilometer-square site in the Mojave Desert, California." The project consisted of an image projected in stereo (one image for each eye) onto four ten-foot walls. Lightweight liquid crystal glasses were worn by participants to create a 3-D effect. The viewer could travel through the virtual landscape by using a joystick and was free to "walk along the surface or fly freely above (or below) the surface." The participants were able to manipulate the landscape by exaggerating the spatial scale to make elevation changes more noticeable. They also could exaggerate the time scale to see shadows move quickly across the desert. Beyond viewing or manipulating the surface of the landscape, participants could also follow the water cycle. Viewers could trace the path of water from cloud to raindrop to puddle or stream and back through evaporation into clouds. This feature in particular highlighted the relationship of water to topographic variations.[8]

2) "Fire Dynamics in the Yellowstone Landscape from 1690 to 1990: an Animation," by David Kovacic, Alan Craig, Robert Patterson, William Romme, and Donald Despain.

This project used computer technology to create an animated model of fire patterns in Yellowstone National Park. This was done to demonstrate the effect of fire suppression policies from 1872 to 1972. The project asked the following three questions: 1) Did the fire suppression policy make the park more susceptible to fire? 2) Was the extent of the burned area after the 1988 fires unprecedented? 3) Did fire suppression effect landscape diversity? 4) What role does fire play in maintaining diversity?

[8] Douglas Johnston and Wes Reetz, "Traces: Revealing Nature through Models of Landscape Dynamics," *Landscape journal* (1998).

The authors created color-coded maps to show forest age (ranging from successional forest to old growth forests), areas on fire, and areas such as wetlands or rock outcrops that do not burn. Fire scarred tree sections were used to determine dates of past fires.

Using this method the authors created color coded maps of each year and displayed them at two speeds, one at three years per second, and another at seven years per second. Viewers were able to see different burn history scenarios juxtaposed together. One scenario demonstrated how the fire of 1988 was similar in size and intensity to a 47-year period of 1690-1737. Another scenario placed a hypothetical map demonstrating 300 years with no fire against the actual history of the park. This scenario demonstrated that an absolute no-burn policy would create a homogenous forest site, compared to the relatively diverse forest that experienced periodic burning.[9]

Group Two: *New Uses, Deeper Caring*

1) "Windows of Opportunity: Reprogramming Residual Urban Space," by Achva Stein and Norman Millar.

This project was essentially a plan for the "left-over" spaces in urban Los Angeles, particularly those areas along transportation routes or in poorer neighborhoods that are often cut out of the maintenance budget, or underused areas such as stadium parking lots. Essentially, it is a wish list for land re-use in a manner that would respect and foster cultural practices and encourage people to know more about the natural environment.

The designers suggested reprogramming for a variety of uses. Among these were technology, where they recommended rainwater harvesting, solar energy harvesting from panels

[9] David A. Kovacic, "Fire Dynamics in the Yellowstone Landscape from 1690 to 1990: An Animation," Ibid.

acting as shade structures in parking lots, and harvesting energy from windmills, especially ones adapted to private use.

They also advocated the reclamation of green open spaces with a goal of promoting appreciation of local ecology rather than the ecology of somewhere else. For this purpose native plants would be used to build appreciation and recognition of local environment. To connect people to their environment and to create an invested interest, they proposed that land be devoted to green industry practices such as mini-forestry where wood could be coppiced and harvested for fuel or pulp, or native or medicinal nurseries.

Thirdly, they advocated the use of underused land as an agricultural opportunity for those in need, those who could use extra income, or the elderly. They proposed turning underused land along freeways and roads into farmland for non-edible crops. They proposed orchards for areas suitable for edible crops, and advocated a policy change to allow the raising of chickens and pigs that would limit kitchen green waste and provide income for the poor.

Finally they proposed the creation of spaces for cultural practices that are often overlooked or pushed to the edge by traditional urban planning. These spaces would include places for people to sell excess items, play loud music, loiter, wash and repair cars, and play.[10]

2) "Glenn W. Daniel King Estate Park Master Plan," by Louise Mozingo with Ann Baker, Jonathan London, Nicholas Ancel, Iris Cheng, and Masato Dohi.

This project is a management plan for a popular park in Oakland, California. The park lies on an 80-acre ridge containing remnants of perennial grassland and oak savannah that used to be characteristic of the region. Periodic arson inadvertently helped to maintain this ecosystem, but highly flammable invasive exotics were becoming a problem and made the slopes a very high

[10] Achva Benzinberg Stein and Norman Millar, "Windows of Opportunity: Reprogramming Residual Urban Space," Ibid.

fire risk. In addition to fire risk, the residents in the surrounding neighborhood also complained about improper use of park, limited access, and the decline of the native oak savannah ecosystem.

The designers organized community "charrettes," and worked with the community to come up with a design and management plan for the park that would meet their concerns. This community involvement is what the designers claimed to be the eco-revelatory aspect of the project. According to the designers, "as the community continues its involvement with the park, it also provides a template for how communities can become active partners in fulfilling their own environmental visions."[11]

Group Three: *Signifying Features*

1) "Urban Ecological Retrofit," by Joan Iverson Nassauer with photographs by Chris Faust.

The designers used an opportunity created from an ordinary street-resurfacing project to retrofit a conventional stormwater street system with a system using raingardens to infiltrate stormwater into the soil.

The designers knew that the success of the project would depend on the homeowners' perception of the changes taking place in their neighborhood. Therefore, the designers worked with the neighbors to determine their aesthetic values. They determined that the neighborhood would appreciate the raingardens more if they followed "conventional shapes," incorporated the structural materials familiar in the neighborhood, and followed the neighborhood practice of clearly defined garden edges framed by neatly clipped turf.

[11] Louise with Ann Baker Mozingo, Jonathon London, Nicholas Ancel, Iris Cheng, and Masato Dohi, "The Glenn W. Daniel King Estate Park Master Plan," Ibid. 12-14.

However, the designers did not want to camouflage the ecological function of the raingardens. Therefore they filled the raingardens with native wetland and prairie plants, and used river rock to define edges and signify function.

As a test to whether or not the community would appreciate the project and see it as an improvement, fifteen optional raingardens were proposed so that residents could decide to include a raingarden in their own yard. By the start of construction, "each of the fifteen optional gardens was taken." The designers hailed the project as a financial success. According to the designers, the retrofit cost about ten percent less than a conventional stormwater system.[12]

2) "Hattiesburg Lake Terrace Convention Center," by Edward Blake.

This realized project was a design for the grounds of the Hattiesburg, Mississippi Convention Center. The site was a former flood plain woodland that had been cleared and filled for commercial development and maintained by mowing except for at the edges where invasive exotics were growing aggressively.

The design called for a recreation of the wetland and a garden that would be a "microcosm of Hattiesburg's context of flood plain surrounded by terraces and hills."[13] It created a one-acre marsh to slow and filter water from the parking areas and building rooftop. The marsh was adjacent to a two-acre lake that would contain underwater terraces at different depths for the purpose of showing how slight differences in elevation can create spaces for plants uniquely tolerant of specific depth conditions. A fountain on the terrace of the convention center that Blake entitles the "Necklace of Life Fountain" surrounded by green tiles is, according to the designer, "a symbol of the landscape's rebirth."

[12] Joan Nassauer, "Urban Ecological Retrofit," Ibid.
[13] Edward L. Blake, "Hattiesburg Lake Terrace Convention Center," Ibid.

Trails allow visitors to circulate throughout the site and experience the different biotypes common to the region as well as witness the efforts at hardwood restoration.[14]

3) "Watermarks at the Nature Center," by Richard Hansen.

Another realized project, "Watermarks at the Nature Center" took place on the grounds of the Nature Center and Greenway of Pueblo, Colorado along the Arkansas River. Existing conditions on the site were degrading water quality and at the same time concealing drainage. Hansen proposed remedies that would improve water quality and be visible, sculptural, and educational.

His project consisted of three parts. The first was to remedy an erosion problem in a disturbed shortgrass prairie. Past overgrazing and intense rain had cut gullies through the prairie down to the river. Hansen proposed the construction of a series of check dams. The check dams were built with student help and each was marked by a granite and bronze icon. The check dams and markers were to become part of an interpretive trail that would be dedicated to the importance of the shortgrass prairie.

Hansen's second project involved the construction of raingardens—what he called wetland pockets—alongside an existing parking lot. The raingardens incorporated another bronze and granite marker, a dense planting of native cattails, and a trench drain of local sandstone cut in a riffle pattern to evoke the image of stormwater. These wetland pockets would visually remind people of stormwater created from large parking areas and they would improve water quality as well. To assess the extent to which the raingardens were able to biologically filter stormwater, trained science students and teachers through the Riverwatch Program would monitor their effectiveness.

[14] Ibid.

Hansen's last project was to revive a cottonwood forest in a derelict hayfield that was once part of the Arkansas River's floodplain. According to Hansen, cottonwood forests are the "richest ecological zone within Colorado for birds and wildlife."[15] However, suburban development, flood control measure that erase the floodwaters necessary for cottonwoods to reseed, and competition with invasive exotic species have reduced cottonwood riparian forests to only two percent of the state's land area.

Hansen reworked the drainage from adjacent parking lots to flow into the hayfield. The intense, periodic storms common to the area would create the runoff necessary to mimic the flooding vital to cottonwood reproduction. Again, a granite and bronze marker was placed in the field, and an arc of stones traced the location of a former point bar, the best spot for cottonwood seeds to flourish. Several young cottonwood trees were planted to encourage the return of the forest.[16]

Group Four: *Exposing Infrastructure Processes*

1) "Stormwater Gardens (Convey, Capture and Reuse: Stormwater)," by William Wenk and Billy Gregg.

This project consisted of three works submitted by Wenk Associates, Inc. in three different scales: community, civic, and intimate.

The community scale project was a plan for a stormwater management system for the Stapleton Airport redevelopment project in Denver, Colorado. It proposed that water management should be a central concern of the redevelopment and consisted of a series of parks and open spaces designed around a stormwater system that would convey, capture, and clean stormwater.

[15] Richard Hansen, "Watermarks at the Nature Center," Ibid.
[16] Ibid.

The civic scale project was created to stop severe channel erosion on a creek called Shop Creek caused by urbanization in the drainage basin. Wenk Associates, Inc. proposed the creation of sculptural drop structures, inspired by "sand dune topography and the erosion of the high plains" that would slow the water and catch pollutants. A wetland, which they claimed "look[ed] as though it [had] hosted birds and fish for centuries" lined the banks to clean polluted runoff and create habitat.

For the intimate scale project, Wenk Associates, Inc. constructed a wetland garden at their own office where an underused asphalt drive had once stood. The garden was created as an infiltration basin to capture water from the building's roof. Curved, sculptural seat walls contained the splash of runoff directed from gutter spouts, and PVC pipes directed the stormwater through a series of furrows that give the garden a strong linear appearance. Native and xeric grasses were planted throughout the site, arranged by their tolerance to flood and drought. Those more tolerant to flood were arranged closer to the seat walls and drainage spouts, while those more tolerant to drought were at the outer reaches of each basin.[17]

2) "Urban Grass Waterways: Rethinking Stormwater Infrastructure in the Anacostia River Watershed," by Joseph Eades.

This project was a proposal to rethink urban river way infrastructure to make it more civically engaging and ecologically responsible. The Anacostia, where it flows through Bladensburg, Maryland, was channeled and separated from the community by the Army Corps of Engineers. Eades' project proposes allowing the Anacostia to assume its previous meander, turning the existing channel into a smaller canal that would provide irrigation for municipal projects, and serve as a civic amenity and flood control device. Traditional stormwater systems

[17] William Wenk and Billy Gregg, "Stormwater Gardens (Convey, Capture, and Reuse: Stormwater)," Ibid.

would be unearthed and transformed into grass waterways. Each would have a series of check dams to slow water and trap sediment. Captured water would be allowed to infiltrate the soil, or it could be used for irrigation purposes.

This project, Eades claims, would improve the town's marina by alleviating silting problems, create a civic amenity in the downtown to spur economic development, and create visible green infrastructure that could help the community see stormwater as a resource rather than a liability.[18]

3) "Wet Lands: Civic Stormwater + Contingent Spaces," by Kathy Poole.

This project proposes a design based on a stormwater management plan for Carr's Hill, part of the University of Virginia in Charlottesville. Poole looked at ways that water could become not only more evident, but also an active player in a civic landscape.

Poole's design begins with her *Sand/Deposition Theater* (italics are hers). Here stormwater flows out of its drainage pipe and into a site composed of sand terraces edged with gabion seating walls. Rakes hang on the wall of the adjacent Performing Arts building, and patrons are welcome to use these to create their own sand gardens.

Next, the water flows into Poole's *Marsh/Pool Classroom*, a marsh with different levels of terraces that create low and high marsh gardens. Here toxins settle out and are taken up by wetland plants. There is space for classrooms, which she calls outdoor teaching terraces, and drives and paths that cross through the area are elevated above the marsh by a metal grate. Marsh grasses are allowed to grow through the grate, and distinct paths can be altered with each mowing. Finally, the water enters the *Entry/Settling Basin* where water is impounded. There,

[18] Joseph Eades, "Urban Grass Waterways: Rethinking Stormwater Infrastructure in the Anacostia River Watershed," Ibid.

residents are encouraged to "ice skate in the winter and boat and cool their feet during the relentless Virginia summers."[19]

Group Five: *Reclaiming, Remembering, Reviving*

1) "Soil that New York Rejected and Re-collects," by Anuradha Mathur and Dilip da Cunha.

This is a proposed project for New York City's Governors Island. The site had been owned by the U.S. Army and Coast Guard since 1784, but was being turned over to the city. The site had also operated as a repository for landfill excavated from New York City's subway construction and channel dredging during the early 1900s. Currently the site has 73 acres of bedrock where historic structures like the Governor's House (1708), Fort Jay (1798), and Castle Williams (1811) stand. The remainder of the island is composed of 103 acres of landfill.

Mathur and da Cunha's design was based on the metaphor of solid vs. shifting ground. The designers proposed that the firm ground "is the realm of the spectator." On the 'firm ground' part of the island, history would be respected and views would be opened towards Manhattan, which would become what the designers call "a stage on the bay."

The shifting ground (the landfill portion of the island), they claimed, is "the realm of the actor." It is "the place of landfill, earth, and possibility." Mathur and da Cunha proposed using plantings to reinforce the divide between these two territories. Beyond this they proposed a promenade to connect the historic northern end of the island to the repository on the island's

[19] Kathy Poole, "Wet Lands: Civic Storm Water + Contingent Spaces, Carr's Hill, the University of Virginia," Land forum.6 (1999).

southern point. They claimed the repository would "sound the depth of the earth and present the history of the transformations of the soil of the island, its rejection and collection."[20]

2) "Ring Parks as Inverted Dikes," by Kristina Hill.

Hill's project is a proposal for a region in eastern Germany near the city of Senftenberg, where extensive government strip mining projects under both Nazi and Communist regimes had relocated entire towns and villages, scarred the landscape, and fouled the groundwater. Though the mining operations had brought some wealth to the region, the government had enacted official policies of hiding the extent of environmental degradation from the populace. After unification, when nuclear power from the west became a cheaper alternative, the old coal mining operations were shut down, leaving a devastated economy and ecology. Rising groundwater mixed with widespread soil contamination and toxic waste dumps, many of which were in unrecorded locations. The city of Senftenberg was in the path of several known toxic plumes, and there was a strong possibility of unexpected plumes forming from unrecorded toxic waste dumps.

Hill's proposal suggests the need for a landscape level strategy flexible enough to treat newly discovered plumes and encircle vulnerable areas. She proposes the construction of a series of berms that would form linear parks with monitoring wells. In the event that a toxic plume is detected, the wells would operate as pumping stations that would create a cone of depression in the water table. When enough wells were operating, the result would be an inverted dike where toxic water would be pumped up and treated.

The monitoring wells would be placed at regular close intervals, and a series of colored flags would inform the public of the water quality status. Glass houses would enclose pumping and

[20] Anuradha Mathur and Dilip da Cunha, "Soil That New York Rejected and Re-Collects," *Landscape journal* (1998).

filtering stations, making treatment also visible to the public. Berms would be lined with trees and act as pathways to take people back into a landscape that many had not been allowed to visit in years. Old mining pits would become areas where paths would converge with an observation tower built at each of these junctures. The sites of obliterated villages would be marked with fields of first red clover, to add fertility to the soil, and then mustards, to take up soil contaminants.[21]

3) "Testing the Waters," by Julie Bargmann and Stacy Levy.

This project is a realized design for a park to treat acid mine-drainage in Vintondale, Pennsylvania. This was an interdisciplinary project that combined expertise in science, history, art, and design.

Vintondale's economy had been built around coal mining, and even though mining had left the region, large piles of mine refuse continued to leak toxins into groundwater and contaminate the adjacent Blacklick Creek. The primary toxin was a substance known as acid mine-drainage (AMD), which "is formed when rainwater and groundwater absorb the minerals exposed by the mining process." This contaminated water would leak out as a yellow, rust-colored layer that would kill off life in streams and rivers by suffocating the lower ends of the food web and raising the acidity level.

The project proposed a passive treatment system composed of retention basins with limestone spillways and a constructed wetland. As water flows through each of the six retention basins it passes over a limestone spillway. As the water comes in contact with the limestone the metals settle out and encrust on the spillway. From each pond the water changes from acidic orange to an alkaline blue green before flowing into the constructed wetlands for final treatment

[21] Hill, "Ring Parks as Inverted Dikes."

and then returning to Blacklick Creek. Alongside these "pH ponds", a "Litmus Garden" was planted using native riparian species whose colors would reflect the changes in color that the water was undergoing. In the wetland, remnants of the industrial past are exposed. Footprints of buildings poke above the grasses and black discs are laid out to recall the 152 coke ovens that stretched across the mine works. Monitors at the Acid Basin display the acidic level, and the color gradient of the changing water can be seen from the vantage point of the Community Uplands.[22]

Group Six: *Changing Perspectives*

1) "Foothill Mountain Observatory: Reconsidering Golden Mountain," by Terry Harkness.

This project was a proposal for a landscape observatory in California's Sierra Madres. Harkness wanted to compare two mini watershed systems, one independent of human involvement, the other managed. His design arranges plantings in a traditional orchard style, common to the region and juxtaposes different plant types, native to exotic, and different irrigation regimes.

Harkness believed that creating two watersheds, one managed, one unhindered at such a close proximity would give visitors the possibility of comparing the two. The demonstration garden plots would also demonstrate to the public various approaches to water conservation.[23]

2) "HORIZONS Revealed and Constructed," by Margaret McAvin and Karen Nelson.

This final project is a partially realized design for the Wheeler School Farm, in Seekonk, Massachusetts. It proposed design interventions, many that have an interactive element, which would make students more aware of their environment.

[22] Julie Bargmann and Stacy Levy, "Testing the Waters," Landscape journal (1998).
[23] Terry Harkness, "Foothill Mountain Observatory: Reconsidering Golden Mountain," Ibid.

Along paths the designers called for trail markers that would indicate water table level, rods that would indicate the height of flood levels, and pools that would intercept stormwater. A metal scrim wall would indicate routes at intersections and reflect the differentiations in sunlight from season to season. Paths, sightlines and aligned orientation points would point to both solar and magnetic north. Finally, a pool house carved into a hillside would expose the bedrock while water running from the showers would feed a constructed bog garden.[24]

Praise, Criticism, and Recommendations

Guest essayists were invited to critique the exhibition and have their papers published alongside the exhibition entries in a special issue of *Landscape Journal*. The essayists were chosen to represent a range of interests from "ecology to landscape architecture history and theory, from landscape perception to art and cultural history and criticism."[25] They were asked to respond to the exhibition, the works in it, or both, and to consider the entries in the larger context of eco-revelatory and ecological design.

Most of the comments fell into one of three categories: praise, criticism, and recommendations. Essayists praised eco-revelatory design for its goals and ambitions and for what they saw as its ability to make ecologically responsible design, make the public more aware of their environment, bridge the gap between art and ecology in landscape architecture, and bring more visibility to the profession. Criticism was focused more on specific projects and fell into one of three categories: criticism of a lack of clarity, criticism of a lack of scientific knowledge usually in the form of inappropriate planting schemes or statements and assumptions not supported by scientific data, and criticism of missed opportunities. Finally, many of the essayists

[24] Margaret J. McAvin and Karen Nelson, "Horizons Revealed and Constructed," Ibid.
[25] "Contributors." xi.

gave recommendations for what they hoped would make eco-revelatory design a more viable part of landscape architecture.

Praise

Most of the essayists praised eco-revelatory design in general for its goals and promise. Carolyn Merchant, in her essay "Partnership with Nature," saw eco-revelatory design as a promising symbol of a partnership between people and nature where "the greatest good for the human and nonhuman community is to be found in their mutual living interdependence."[26] She praised what she saw as eco-revelatory design's goal of remedying the over exploitation of nature. Richard Haag, in his essay "Eco-Revelatory Design: The Challenge of the Exhibition," found promise in eco-revelatory design's focus on the "stewardship of brownfields, the forsaken places [and] the *terrain vague*." He saw it as the natural path of a profession founded in response to "the maltreatment of the land by architects and engineers of an earlier time" and "the ineptitude of our sister professions."[27]

Patricia Phillips, in her essay "Intelligible Images: The Dynamics of Disclosure," believed that eco-revelatory design had the ability to make both the landscape and the profession of landscape architecture more visible. She suggested that people were drawn to places for different reasons and that some sites revealed their features and attractions more readily than others. "Unlike architecture," she said, "landscapes are not always explicit," and landscape architecture is often invisible to the general public. She praised eco-revelatory design for

[26] Carolyn Merchant, "Partnership with Nature [Exhibition Review]," *Landscape journal* (1998). 69.
[27] Richard Haag, "Eco-Revelatory Design: The Challenge of the Exhibit [Exhibition Review]," Ibid. 72.

creating a more visible aesthetic that would "illuminate process and highlight issues so that the public can be a critical participant in particular settings."[28]

Criticism

Lack of Clarity

The exhibition defined eco-revelatory design as "landscape architecture intended to reveal and interpret ecological phenomena, processes and relationships,"[29] and called for entries that would "be judged on their legibility and aesthetic appeal to nondesign professionals."[30] Therefore, clarity and legibility were seen as important factors. However, many of the entries were accused of clouding their presentations with confusing rhetoric and overly artistic symbolism. Many of the essayists asked if the works were confusing in the gallery, would they be illegible in the field?

Much of this criticism fell on Anuradha Mathur and Dilip da Cunha's "Soil that New York Rejected and Re-collects." The design, which is essentially a line of plantings to create a border between the bedrock and landfill portions of Governors Island and a promenade to join the historic north end with the soil repository at the south end, tries to use the two ground elements of the island to build opposition-like metaphors such as "firmness and tradition, divergence and convergence, freedom and constraint."[31] Although praised by some of the critics as "supremely sensitive and poetic"[32] that "if judged in purely graphic terms, [would] win the

[28] Patricia Phillips, "Intelligible Images: The Dynamics of Disclosure [Exhibition Review]," Ibid. 110.
[29] Brenda Brown, Terry Harkness, and Doug Johnston, "Eco-Revelatory Design: Nature Constructed/Nature Revealed: Guest Editor's Introduction," Landscape Journal (1998). xvi.
[30] "Contributors." xi.
[31] Robert L. Thayer, "Landscape as an Ecologically Revealing Language [Exhibition Review]," *Landscape journal* (1998). 124.
[32] Catherine Howett, "Ecological Values in Twentieth-Century Landscape Design: A History and Hermeneutics," Ibid. 97.

blue ribbon,"[33] many wondered what the actual intentions of the project were, and if the public would understand it. Thayer wondered if "in the intent to reveal an ecology, is that ecology revealed if the people 'don't get it'?"[34]

Richard Haag questioned the use of phrases like the "way stations of social conscience" and wondered if the written word was obscuring form-giving and graphic content.[35] Susan M. Galatowitsch complained that language was a problem in many of the presentations, enough so that if often made the intentions unclear, but found particular fault with Mathur and da Cunha. She wrote, "Mathur and da Cunha seek to reveal the 'history of soil transformations' at Governors Island, New York, although the narrative did not elaborate on their use of this phrase, which could refer to chemical, physical, or biological changes (singly or in combination)." Galatowitsch goes on to argue, "Ecological design will be advanced most by projects where the design response and anticipated outcome have been clearly understood and articulated by all those responsible."[36] Although directed at Mathur and da Cunha specifically, this criticism was a warning to designers interested in eco-revelatory design in general not to make overarching and vague statements that are difficult to test. Doing so, she insinuated, would undermine the ability to objectively evaluate the success of such projects and would make eco-revelatory design a subject hard to be taken seriously by ecologists and planners interested in objective results.

Mathur and da Cunha's project was not the only one accused of being unclear. Thayer also accused Bargmann and Levy's project, and Poole's project of committing so much effort to

---

[33] Robert L. Thayer, "Landscape as an Ecologically Revealing Language [Exhibition Review]," Ibid. 124.
[34] Ibid. 125.
[35] Richard Haag, "Eco-Revelatory Design: The Challenge of the Exhibit [Exhibition Review]," Ibid.
[36] Susan M. Galatowitsch, "Ecological Design for Environmental Problem Solving [Exhibition Review]," Ibid. 100.

making the presentation artful that communications suffered. Language acting to obscure rather than to clarify was again brought up as a problem in Poole's project by her comments such as "the grit of road and roof runoff are the stuff of courtyards and the stuff of dreams."[37]

Language and presentation were not the only sources for criticism about a lack of clarity; some design decisions were also brought into question as well. Galatowitsch wondered how well the design for the "Glenn W. Daniel King Estate Park Master Plan" would work as an eco-revelatory design. The project saw its revelatory aspects in citizens' participation in the forming of a master plan and the ecological knowledge it would bring them. However, Galatowitsch wondered if people would understand the maintenance issues and the work necessary for native restoration once the initial restoration was completed. Would there be any way for newcomers to the park to realize the processes involved in its restoration and maintenance or even why native restoration is important? Would there be any way for citizens involved in the community planning effort to remember these processes? Galatowitsch suggested that eco-revelatory designs that incorporate habitat restoration use "physical benchmarks [that] allow visitors to gauge progress, thereby calling attention to time as a key aspect of restoration." She cited Richard Hansen's "Cottonwood Revival" project, as an example where markers were successfully used to help the public gauge progress and provide a reminder of the process once restoration is complete.[38]

Thayer also worried that Kristina Hill's project "Ring Parks as Inverted Dikes," needed "more demonstrative ways of expressing the level and condition of groundwater at the test

[37] Robert L. Thayer, "Landscape as an Ecologically Revealing Language [Exhibition Review]," Ibid. 125-126.
[38] Susan M. Galatowitsch, "Ecological Design for Environmental Problem Solving [Exhibition Review]," Ibid.

wells."[39] He agreed with Hill's use of colored flags, but suggested that since the danger of a toxic plume was related to its depth, the flags could incorporate differences in height to reflect the depth of the groundwater at a particular site.

Lack of Scientific Knowledge

Surprisingly, for a design philosophy that sought to reveal ecological processes to the public, there was some criticism that the designers misunderstood the ecological processes they were themselves trying to reveal. Most of this criticism came from Susan Galatowitsch, perhaps not surprising considering she holds a Ph.D. in ecology and evolutionary biology.[40]

Galatowitsch especially criticized those designs that, while dealing with stormwater, incorporated the use of a wetland or bog. She complained that the plant palette often used by the designers represents a healthy, normal wetland, and not one that would suffer periodic surges and dry spells. Galatowitsch argued that wetlands impacted in such a way would normally have a higher number of invasives, or be composed by more of a monoculture. She explained, "wetlands impacted by stormwater typically have extreme water level fluctuations, narrow vegetated zones, a high proportion of open water, and high coverage of invasive perennial species compared with unimpacted wetlands. However, the wetlands receiving stormwater are envisioned by the designers in this exhibition as possessing the qualities of unimpacted wetlands." She argued that most of the plants the designers hoped to sustain were not found in the types of wetlands they were constructing. She continued, "wetlands cannot be assumed to be resilient to the altered water quantity and quality associated with stormwater because added

[39] Robert L. Thayer, "Landscape as an Ecologically Revealing Language [Exhibition Review]," Ibid. 121.
[40] "Contributors."

stresses to these ecosystems reduce the diversity of plants and animals to favor the few that can tolerate extreme water fluctuations and pollutants."[41]

This, she argued, represents a failure to understand the processes the designers wished to reveal. Because bioinfiltration swales, raingardens, and constructed wetlands would often occupy visible areas adjacent to parking lots, boulevards, and buildings, Galatowitsch emphasized the need for knowledge of proper plant material saying it is "critical to both vegetation success and public acceptance of these kinds of projects."[42]

Galatowitsch extended the same criticism to Wenk Associates' Shop Creek project and their use of in-stream flood control devices called drop structures. She complained that these structures are likely barriers that could impede movements of aquatic invertebrates, fish, and amphibians. She argued that stream ecosystems are dependent on "longitudinal refugia," the ability to move from impacted to unimpacted stream sections during disturbances. Barriers, she claimed, would prevent this movement, and the ecosystem damage would offset the barrier's value for water quality improvement.

Galatowitsch also took aim at Wenk Associates' claim that "wetlands along the stream corridor also clean polluted runoff and create habitat that looks as though it had hosted birds and fish for centuries."[43] According to Galatowitsch, the look of a wetland has little to do with its ability to function. She argued that a created wetland should not be expected to perform like a

[41] Susan M. Galatowitsch, "Ecological Design for Environmental Problem Solving [Exhibition Review]," Landscape journal (1998). 100.
[42] Ibid. 101.
[43] William Wenk and Billy Gregg, "Stormwater Gardens (Convey, Capture, and Reuse: Stormwater)," Ibid.

natural one, at least not quickly, and that any statements of ecosystem recovery should be based on more than "casual visual inspection."[44]

Galatowitsch also criticized Stein and Millar's Los Angeles "Windows of Opportunity: Reprogramming Residual Space," and Nassauer's Minnesota "Urban Ecological Retrofit." Stein and Millar's project, she criticized for not taking "into account the hydrological reality of flash flooding on desert river ways," one of the sites of their proposed reprogramming. "Consequently," she argued, "this design seems to discourage thinking about the fundamental nature of the urbanized Los Angeles River and places like it elsewhere."[45]

Nassauer's project is criticized not for the design itself, but for a claim it makes that, "months after planting, Birmingham Street has become a model for neighborhoods and cities throughout the Twin Cities metropolitan area."[46] Galatowitsch argued that while it was a model for residential design, the environmental effectiveness would need to be monitored over "a period of years" before one could determine if it was a good ecological model or not.

Galatowitsch argued that the science behind a design should be accurate and any scientific claims should be truthful and not exaggerated in order to build public and professional acceptance.

Missed Opportunities

A final criticism from the essayists came from what many of them saw were missed opportunities to fully exploit both individual projects and eco-revelatory design as a genre. Thayer criticized Blake's Hattiesburg design for not going far enough to reveal the ecological workings of the site and the impact of human action upon it. He questioned some of the

[44] Susan M. Galatowitsch, "Ecological Design for Environmental Problem Solving [Exhibition Review]," Ibid. 101-102.
[45] Ibid. 105.
[46] Joan Nassauer, "Urban Ecological Retrofit," Ibid.

ecological aspects of the design, especially the water feature which Thayer claims would draw considerable power to operate, and the use of tile, which he states would require great amounts of energy to produce. Though Thayer leaned towards designs that offer "more in the way of healing and regeneration" he also believed that, if used, the hidden costs of a design—for example the hidden electrical system, the pumps and the filters—should be revealed.[47]

In addition to critiquing individual projects, essayists found missed opportunities throughout the exhibition to fully explore and exploit eco-revelatory design's promise. Many wondered if this find was indicative of a weakness in the exhibition, or rather indicative of the limits of eco-revelatory design.

Many wanted to see an increased range of subjects eco-revelatory design might try to reveal. Brenda Brown noted that while many of the designs deal with historical aspects of a site, usually by leaving traces or markers dedicated to the past—with the exception of the two computer models—most of the designs left changes that would occur with time out of the equation. In addition, she stated that only Hill's monitoring wells and McAvin and Nelson's markers reflect on present conditions.[48]

Many of the essayists also questioned why the exhibition did not address some of what they saw were the most important environmental issues of the day. Richard Haag lamented the lack of projects dealing with garbage and recycling, and Susan Galatowitsch wanted to see projects capable of addressing and revealing problems associated with habitat fragmentation. Brown complained that only three of the projects: Stein and Millar's, Mozingo's, and Blake's mentioned animals. Thayer wondered why technology and infrastructure were not made more

[47] Robert L. Thayer, "Landscape as an Ecologically Revealing Language [Exhibition Review]," Ibid.
[48] Brenda Brown, "Holding Moving Landscapes [Exhibition Review]," Ibid.

important. He argued that even though technology is one of the biggest ways people interact with and intervene in the landscape, and often the cause of ecological trouble, it is often ignored or covered over by designers. Science, he said, has created deeper knowledge, but it has also allowed people to ignore or cover up certain aspects or relationships with their environment. Eco-revelatory design, he argued, could be about re-exposing them.[49] Brown stated that although the designers articulated people's place in and relationship to nature, she wondered "how much of nature's subtleties have been overlooked."[50]

Thayer pointed out that 75% of the projects deal with water, perhaps because it is the most visible and dynamic ecological element at a perceivable human scale.[51] However, Brown complained that "while water is central to many projects, only a few begin to address the complexities of its relation to geology, landforms, soil, and plants; few give much detailed attention to smaller scale intricacies and relations between plant, animal, and human life. [Also] while kinesthetic as well as visual experience is integral to many of these landscapes, fragrance and sound remain ignored or taken for granted." Brown then went on to question why "projects deal with change and growth, [but] deal little with ongoing cycles of birth, death, and decay." She speculated that these elements do not fit well with the ideals of an "entwined nature/culture," and perhaps represent a limit for eco-revelatory design.[52]

Thayer wondered if this narrow focus indicates that eco-revelatory design is limited to revealing only the "tip of the iceberg." He suggested that the "portion of any ecosystem capable of being revealed by a landscape is apt to be a mere fragment of the total underlying structure."

---

[49] Robert L. Thayer, "Landscape as an Ecologically Revealing Language [Exhibition Review]," Ibid.
[50] Brenda Brown, "Holding Moving Landscapes [Exhibition Review]," Ibid. 65.
[51] Robert L. Thayer, "Landscape as an Ecologically Revealing Language [Exhibition Review]," Ibid.
[52] Brenda Brown, "Holding Moving Landscapes [Exhibition Review]," Ibid.

He went on to argue that people see and notice surfaces, yet they depend on a complex interaction "of energy, matter, elements, cells, organisms, populations, and information thus far beyond the scope of human imagination or science."[53] Therefore he suggested that eco-revelatory design might be limited to revealing those processes that occur at a scale that is perceivable and legible to the human mind.

Recommendations

Many of the essayists gave recommendations for what they hoped would make eco-revelatory design a more viable part of landscape architecture. Recommendations normally fell into one of four categories: recommendations that would increase clarity and improve understanding, recommendations that would increase the scope of eco-revelatory design's subjects, recommendations to improve the scientific quality of design, and finally recommendations for ways to classify and assess eco-revelatory design.

Increase Clarity and Improve Understanding

Eco-revelatory design's formal qualities are created through what the designers try to reveal. Depending on the way one looks at it, this might limit eco-revelatory design by placing ecological interests above religious, political, mythological and 'art for art's sake' interests; or it could open doors and unexplored venues for landscape architecture. Philips praised the possibility of eco-revelatory design making both natural processes and the profession more visible. She lamented how invisibility "often discourages people from developing searching, critical responses to the world they inhabit." However, Philips wondered what the effects on perception would be from this new formal approach to design. She asked, "How will this subtle, but arguably radical, restructuring of theory and practice enhance awareness and invent new

[53] Robert L. Thayer, "Landscape as an Ecologically Revealing Language [Exhibition Review]," Ibid. 119.

landscapes? How can an ethic of restrained designs have a maximum impact?"[54] If eco-revelatory designs are about creating places where people think about, appreciate, and advance environmental quality, how best then to go about creating these types of places?

Galatowitsch examined past attempts to encourage sustainable decisions and found that incentives that encourage people to live more sustainably are more likely to be durable if they "increase appreciation for environmental quality, directly through experience or indirectly through education."[55] Philips agreed. She argued that while eco-revelatory design is an articulate way of expressing ideas, revelation depends upon the beholder. She suggested that those designs which "bring inquiring participants as close as possible to evolving processes produce the most intelligible images. And those that offer multiple points of view evoke more discursive—and applicable—narratives for future excursions and encounters."[56]

To this end, Galatowitsch offers the suggestion that designers should concentrate on just a few ecological phenomena at a particular site to increase the chance that the meanings and qualities they are trying to relay are understood. She evaluates the choice of the ecological phenomena expressed in the exhibition on three criteria. First, they should be relevant to the site or the surrounding region so one could link what is learned from the design to a larger landscape issue. Second, phenomena revealed should be revealed honestly, at the scale of the site, and should avoid being a contrived representation. Third, the creation of places to expose and experience ecological phenomena should not pose hazards to humans or degrade the environment.

---

[54] Patricia Phillips, "Intelligible Images: The Dynamics of Disclosure [Exhibition Review]," Ibid. 110.
[55] Susan M. Galatowitsch, "Ecological Design for Environmental Problem Solving [Exhibition Review]," Ibid. 99.
[56] Patricia Phillips, "Intelligible Images: The Dynamics of Disclosure [Exhibition Review]," Ibid. 116.

Increase Scope

As stated earlier, many of the essayists felt that the exhibition missed opportunities to reveal a number of subjects that they thought were ecologically important. Thayer in particular, wanted to see the range of topics covered by the exhibition expanded. He argued that while it is natural for landscape architects to deal in the visible-spatial realm where humans normally intervene, there is a need to go deeper to deal with issues less visible than water. He wrote, "ecosystems in general lie even farther beyond the surface of perception, and great challenges await us if we pursue and develop this line of landscape intervention. How do we use the medium of landscape to interpret phenomena such as endangered species, ozone depletion, global warming, or the growing gap between rich and poor? If we fail to concern ourselves with these crucial issues, will we remain relevant as a profession and discipline?"[57]

Improve the Science

Galatowitsch argued that eco-revelatory design offered an opportunity to consider how design complemented other ecological strategies, and to examine the effectiveness of design at environmental problems solving. She saw a need for incorporating research experimentation opportunities into the planning process of a design. Most scientific data, she argued, comes from natural landscapes. Little scientific data is obtained from designed landscapes. Galatowitsch believed that eco-revelatory designs presented an opportunity to incorporate research experiments to provide quantifiable data on the success or failure of different strategies. Then, if

[57] Robert L. Thayer, "Landscape as an Ecologically Revealing Language [Exhibition Review]," Ibid. 129.

scientists said that a particular design solution is lacking in evidence, it could be tested to see if it indeed was.[58]

Assess and Classify

Thayer and Galatowitsch also offered recommendations for assessing and classifying eco-revelatory design. As stated already, Galatowitsch believed designs should be relevant to the site and surrounding region, revealed honestly, avoid being contrived representations, and respect human and ecological health. She believed that eco-revelatory design demonstrates that science and art can combine to create places that are rich for humans and for ecosystems. However, in order to fulfill this goal she believed that one must recognize the importance of both ecological and human factors, allow for continued research, and push the boundaries of creativity. She recommended the following:

1) "Projects that fail to address human experiences should not be presumed to be ecologically sound. Those that are aesthetic successes need not be exempt from sound environmental choices."
2) "Pre-design analysis and post-occupancy evaluations need to include both social and ecological components. Ecological designs cannot be considered successful without some real appraisal of environmental-biological changes that have occurred on site since design implementation."
3) "Accomplishments in both dimensions require creativity. The extent to which ecological design becomes effective environmental problem solving depends on commitments to both art and science."[59]

[58] Susan M. Galatowitsch, "Ecological Design for Environmental Problem Solving [Exhibition Review]," Ibid.
[59] Ibid. 107.

Thayer examined the subjects represented in the exhibition, the relationships created between the different projects, and the patterns that emerge in order to draw some broad conclusions about eco-revelatory design. He comes up with four different "continua" that serve to define the field and position different works within that field. The following is a list of these:

1) *Concrete—Abstract*: from very didactic, straightforward communication to more abstract metaphoric or symbolic.
2) *Regenerative—Passive*: seeking to remedy ecological problems or simply revealing or exposing them. According to the project statement, there's room for both, although Thayer favors the former approach.
3) *Nonhuman—Human Ecosystems*: The subject matter may fall from very natural to very cultural areas. A project may work in wilderness or it may work in an urban market. While Thayer argues that it is a mistake to put humans at the center of every ecosystem, "landscape architecture, however, is mostly concerned with ecosystems that are affected by human activities."
4) *Visible—Invisible Ecosystems*: Some ecological processes or phenomena are more visible than others.[60]

Thayer believed that most designs would probably have a gradient of each continuum in them. He found that in the 1998 exhibition "abstract and regenerative landscapes, and human-dominated landscapes with quite visible ecological processes and functions (principally water), predominate."[61] He believed this could be a useful tool to point out strengths and weaknesses of

[60] Robert L. Thayer, "Landscape as an Ecologically Revealing Language [Exhibition Review]," Ibid. 128-129.
[61] Ibid. 129.

eco-revelatory design. In this case, he claimed, one may determine that there is a need for designs that explore concrete, passive, non-human, and invisible aspects.

Chapter 3

After the Exhibition: Outside Criticism of Eco-revelatory Design

The following chapter examines critiques of eco-revelatory design written after the 1998 exhibition *Eco-Revelatory Design: Nature Constructed/Nature Revealed* and its subsequent publication in *Landscape Journal*. To a certain degree the critiques cited here focus on the exhibition and the works within it, but generally keep a broader focus on eco-revelatory design as a whole, its implications for landscape architecture, and its promise for greater ecological good. Though similar in content to the comments of the exhibition essayists, two distinctions are made. First, the post-*Journal* critics spend more time analyzing some of the assumptions made by the 1998 exhibition about eco-revelatory design, and second, they concentrate more on defining what the focus and responsibility of eco-revelatory design should be.

Criticism

Probably the most vehement critic of eco-revelatory design is Robert France, an assistant professor at the Harvard Design School who has published articles questioning, and to some degree, ridiculing eco-revelatory design. Unlike the essayists from the exhibition, France not only accuses eco-revelatory design, and its claim of having a potentially far-reaching effect by means of communicating to and instilling values within the public, of having no significant effect on the greater ecological good; he also claims the same of ecological design in general as well. France argues that in spite of this, proponents of eco-revelatory design make exaggerated and untested claims that are readily digested by designers and landscape architects. Although

France concentrates his criticism on works related to the 1998 exhibition, he argues that since the exhibition and catalogue represent a larger body of work and thinking within landscape architecture, it is safe to argue that the problems he discusses are endemic to eco-revelatory design as a whole.

In his article "Green World, Gray Heart," France questions the ability of not only eco-revelatory design, but also ecological design in general to make any progress against broad ecological problems. He claims that as a realist, one must ask whether "designers who shape a small portion of our built environment offer anything more than better designed deck chairs more pleasingly arranged" on the deck of a Titanic headed for global disaster.[62]

While France acknowledges that environmental planning done on a regional scale (for example creating a management plan for an entire watershed) can make a difference, he claims that most of landscape architecture that works on individual sites (including eco-revelatory design) would contribute very little of significance to the greater ecological good.

France claims that eco-revelatory design projects an image of itself far more significant than it actually is. This, he argues, encourages designers and landscape architects, eager to jump on anything that would improve their image of being environmentally sound, sensitive, and effective to herald its praises without testing its results.

France seems to see eco-revelatory design as an untested gimmick that could derail serious discussion and exploration into beneficial ecological problem solving. The problem, he argues, is that the benefits of eco-revelatory design are unproven and exaggerated. Eco-revelatory design, he states, "just tips its hat to nature while making business-as-usual look

[62] Robert France, "Green World, Gray Heart?: The Promise and the Reality of Landscape Architecture in Sustaining Nature," Harvard design magazine.18 (2003).

nice."[63] While it may have some ecological benefit, he argues, its purpose is more to "green-wash" the image of landscape architecture than anything else.

He argues that even if eco-revelatory design could surmount this problem by merit of its claim to build in the public a sustainable ethic, it would have small success of fulfilling its goals because landscape architecture gives more praise to artistic expression than ecological function. In particular, France believes that eco-revelatory design suffers from a tendency to make claims and assumptions unsupported by scientific data and a lack of clarity that prohibits effective communication.[64]

In his article "Smoky Mirrors and Unreflected Vampires," France claims that at its best, eco-revelatory design is not a combination of art and ecology, rather art and natural history. The difference, France says, is that ecology is intent on "the development and assessment of scientific theory about objective reality." It is an empirical science "based on rigorous hypothetical testing." Ecology, France claims, requires quantitative prediction. He notes that "few of the ostensibly eco-revelatory designs on view in either the exhibition or catalogue contain even a single number; none, as presented, would ever find its way into any reputable ecological conference." Ecology, he argues, without quantification, "is not ecology; it is natural history."[65]

Natural history, he states, is the Victorian-era 'parent' of ecology. It is "an art whose goal is the personal development and perceptions of the individual appreciator of nature."[66] This is, he argues, more akin to eco-revelatory design's purpose and goals of raising awareness and

[63] Ibid. 3.
[64] Ibid.
[65] Robert France, "Smoky Mirrors and Unreflected Vampires: From Eco-Revelation to Eco-Relevance in Landscape Design," Harvard design magazine (2000). 39.
[66] Ibid.

developing within the public an affection for sustainable relationships between people and nature.

Unfortunately, France argues that this sustainability is based on claims that have "less ecologically than meets the eye," and at best represent a synthesis of natural history. This, he argues, is because the quality of scientific information used in the exhibition is weaker than what would be required for scientific ecology. This, he claims, is dangerous because "sometimes the misapprehensions of natural history are so gross that the empathy achieved is closer to that produced by a historical novel or Hollywood epic than that produced by a real grasp of events." France complains that selling designs as sustainable to the public, based on "evidence which will not stand the tests of science is [creating] false understanding, [and] a cheap and tawdry imitation."[67] Making the public believe that developers can offset damage to a sensitive stream by using a raingarden, or that the health and safety of a wetland is somehow connected to its visual appearance without rigorously testing these claims could excuse and create more bad practices. Until eco-revelatory design can develop a way of rigidly testing its claims and assumptions, he argues, it will be more akin to natural history and folk art.

Even if eco-revelatory design were to incorporate rigid scientific testing and strengthen its claims to being a truly ecological design practice, France doubts it would be able to communicate anything about the ecology of a site to the public. He fears designers' egos, combined with a desire to produce works with artistic merit, would get in the way of legibility. Works, he argues, clouded with abstraction aimed at impressing the art-world elite might not attract the general public and would possibly confound rather than assist any reading of the landscape.

[67] Ibid. 39.

To begin with, France argues that despite the grand claims and purported promise of eco-revelatory design to reveal nature and create a partnership between people and nature, little is done beyond revealing the designers' own perspectives and prejudices. He argues that instead of increasing public awareness and encouraging participation in environmental planning and design, designs that claim to be eco-revelatory leave nature's subtleties "opaque, masked behind a smoke screen of artistic abstractions complicated by technological gadgetry, and clouded by self-important, flowery, and frequently vapid prose."[68]

Referring to the 1998 exhibition he says, "Contrary to the large claims that accompany them, most of these eco-revelatory projects reveal little beyond the sensibility of their designers. In these works, too often the result of the images and words is not clarity but obfuscation."[69] France even goes on to say that some of the participants involved in the 1998 exhibition have referred jokingly "to their own 'illegible' representations and [expressed] an inability to understand each other's project displays or texts."[70] If even the designers can't understand one another's projects, how then he asks, will the general public be able to?

Recommendations

Other critics agree with France's positions that designers need to examine the assumptions of eco-revelatory design's ability to affect perceptions and create positive ecological change. They agree that designs from the exhibition lacked the rigid scientific testing necessary to determine ecological effectiveness, and the clarity necessary to relay messages about ecological conditions or remediation to the public. Furthermore, some agree that problems

[68] Ibid. 37-38.
[69] Ibid. 37-38.
[70] Ibid. 39.

indicated in the exhibition are probably indicative of problems with eco-revelatory design as a whole.

However, where France seems to foresee little hope of eco-revelatory design contributing positively to significant ecological health whether directly through remediation or indirectly through education, they see the theory and potential of eco-revelatory design as both possible and promising. Although mindful of the pitfalls that eco-revelatory design could fall into, they believe it could be a successful part of landscape architecture.

To flesh out its promise they give a series of recommendations. Although different in specific content, critics' recommendations normally fell into one of three categories similar to those of the exhibition essayists: recommendations to improve the scientific quality of design, recommendations that would increase legibility and understanding, and recommendations that would increase the scope of eco-revelatory design's subjects.

Improve the Science

Most agreed that the first step to improving the viability of eco-revelatory design was by improving its scientific standards. One critic in particular goes beyond just lamenting a lack of rigorous science and explores ways that eco-revelatory design could improve in this regard. In his thesis for Virginia Polytechnic Institute and State University, *Design Process to Integrate Natural and Human Systems*, Amol M. Deshpande argues that in order to achieve sustainable development, planning and design will need to have an interlocked relationship. In this context he refers to design as a deliberate transformation of the landscape at any scale, and planning as management and policy making to ensure implementation of the design intent. Deshpande argues that allowing for continued research and monitoring within a management plan would enable designers or managers to determine the effectiveness of various solutions. Creating a proper

management plan would maintain or enhance a design's intent, and increase its longevity and viability.[71]

In addition to monitoring the effectiveness of certain remediation solutions like raingardens or constructed wetlands, Deshpande also recommends that designers thoroughly research the sites they are seeking to enhance in order to understand all the factors that formed and could continue to alter them. A key for any eco-revelatory design to be successful, he argues, will be "knowing how humans have modified natural processes and understanding their motivations in doing so." This, he claims, will be helpful "in understanding current conditions as well as potential responses to them."[72]

Often, he argues, designs driven by a particular need to address a particular issue fail to the address underlying problems that formed the problem conditions in the first place. He claims that this is often the result of ignoring the human needs and the way human systems relate to natural ones. He believes that humans should be seen as part of, and not separate from the environment they inhabit, and therefore human practices should be seen as tied to ecological processes. Any design that wanted to improve or reveal a certain ecological function would have to take the human factor into account to have a successful effect that was both functional and appreciated. Deshpande argues that recognizing human needs, such as livability and sense of place as well as ecological (non-human) needs, will help designers understand all the formative conditions of a site. This will enable landscape architects to create designs and management plans that will reconcile the differences between human systems and natural systems and strengthen a symbiotic man/nature relationship into the design.

---

[71] Amol Mukund Deshpande, "Design Process to Integrate Natural and Human Systems," Virginia Polytechnic Institute and State University, 2004.
[72] Ibid. 21-22.

In recognizing how many eco-revelatory designs deal with landscapes impacted, often detrimentally, by human landscapes, Deshpande recommends that landscape architects, before approaching a site, first ask themselves to describe the structure of the landscape, and the functional relationship between different components of the landscape. This will give them an idea of the formative factors on the site and an idea of the relationships between natural systems to each other and natural systems to human ones. Deshpande argues that this understanding is necessary if landscape architects want to either reveal the inner workings of a landscape and their relationship to human systems, or if they want to repair or enhance certain aspects of these systems or relationships.

Finally, Deshpande recommends that landscape architects ask whether a landscape is functioning well. By this he is referring to how it functions ecologically and to how it fulfills human needs. How people interact with and perceive a landscape, he argues, is important because "social and cultural systems are the ones responsible for the continued and healthy association between humans and nature: the cultural sustainability."[73]

Key to this, Deshpande believes, is understanding the differences between human systems and natural systems. Deshpande gives six major differences between the two. First, he states that human-engineered systems are less flexible and adaptive than natural systems. As an example he explains how natural water distribution systems, like rivers and streams, still function even though they are often severely and negatively impacted by human development. Contrary to this, human water distribution systems consisting of pipes, valves, and pumping stations will cease to function if any one of the components fails.

[73] Ibid. 22-24.

Second, Deshpande states that human systems are simpler in structure and function than natural ones. Human systems are designed to achieve a single purpose while natural systems are complex and are multifunctional in managing and improving other resources. A stormwater system is designed solely to collect and dispense of stormwater. A wetland improves water quality, aids in flood control, and creates habitat.

Third, he argues, most human systems function independently of each other. Natural systems are interconnected and tend to affect each other. A stormwater system functions separately from a food distribution system, but natural systems depend on each other and damage to one could result in a loss of functional efficiency in another. Deforestation can lead to soil erosion, impacted wetlands, loss of habitat, and increased heat island effect.

Fourth, Deshpande states that while natural systems are regenerative, human systems are not. Energy released in natural systems is continuously recycled back into the system. Toxic gases released from certain forms of industrial production are not renewed in any way, but enter the atmosphere.

Fifth, Deshpande argues that because human systems are simpler than natural ones, they are easier to perceive and understand. Natural systems' complexity, however, makes them harder to understand.

Sixth, he states that human systems can alter the environment suddenly and drastically while natural systems normally change components gradually. A dam, he argues, takes only three years to build, but can fundamentally alter the hydrology of a river that took centuries to form.

Deshpande believes that designers who wish to reveal or repair the relationship between human and natural systems will need to understand the differences between the two systems and

incorporate the flexible, regenerative, complex and multifunctional qualities of natural systems into their design and planning strategies.[74]

Deshpande recommends that landscape architects look to three different design approaches to help them understand both the environment they are working in, and the human relationship—existing or potential—to that environment. He sees these approaches as a guide to help landscape architects determine how best to integrate designs that deal with human needs into a natural system. The three approaches he offers are: Ian McHarg's suitability analysis, bioregionalism, and a regenerative design approach.

Ian McHarg, in his book, *Design With Nature,* called for a system that gave certain values to different landscapes by identifying the role they play in the greater ecosystem and their tolerance or intolerance to various aspects of urbanization. He claimed that planning "must start with the identification of the processes at work in nature. It must then determine the value of sub-processes to man, both in the parts and in the aggregate, and finally establish principles of development and non-development based on the tolerance and intolerance of the natural processes to various aspects of urbanization."[75] This approach is widely used by landscape architects and is useful for determining suitability of land for particular uses like housing, industrial, agriculture, transportation, and others.

Clair Reiniger, in her essay "Bioregional Planning and Ecosystem Protection," defines bioregionalism as a system that divides the earth into different bioregions distinguished by particular attributes of flora, fauna, water, climate, soil, landform, and by human settlements and cultures. Bioregionalism focuses on the relationships existing between the components of each system. These relationships create the structure of each bioregion. The perspective that all living

[74] Ibid. 15-16.
[75] Ian L. McHarg, Design with Nature (New York: Natural History Press, 1969).

systems—human, animal, water, plant, soil, and atmosphere—are viewed as one living dynamic system distinguishes bioregionalism.[76]

The regenerative design approach seeks to prevent superimposed human systems from disturbing the operational activity of natural ones. It emphasizes what J. T. Lyle, in his *Design for Human Ecosystems*, calls the basic phases of ecosystem function: conversion, distribution, filtration, assimilation, [and] storage. Conversion is how components of a system change from one thing, such as sunlight, to something else, like plant sugars. Distribution focuses on how energy and materials are moved throughout a system, for example, by wind or by pipe. Filtration is how systems purify themselves; for example, it would look at how wetland grasses remove silt from water. Assimilation is how materials break down. In human systems this might generate waste, in natural systems it generates minerals and nutrients for new growth. Finally, storage is how certain materials are held inactive at certain points for different lengths of time. Leaf litter may be held on a forest floor for only days before being assimilated into energy; coal and petroleum may lay in storage for thousands of years.[77]

Deshpande believes that by using suitability analysis to determine where to place different types of human systems, using bioregionalism to understand the interconnected relationships of different components in a system, and using regenerative design process to understand the functions of natural and human systems "we [will not be] looking at single focus solutions to single focus problems, such as sewage disposal, or erosion control, but rather at the management of a whole set of resources."[78]

---

[76] Clair Reiniger, ""Bioregional Planning and Ecosystem Protection"," Ecological Planning and Design, ed. Frederick and William Thompson Steiner (New York: Wiley & Sons, 1997). 185.
[77] John Tillman Lyle, Design for Human Ecosystems: Landscape, Land Use, and Natural Resources (New York: Van Nostrand Reinhold, 1985).
[78] Deshpande, "Design Process to Integrate Natural and Human Systems." 19.

Increase Legibility and Understanding

Eco-revelatory design, however, is more than designers and managers understanding the complexity of ecological systems and their relationship to human systems in order to improve the ecological conditions of certain sites. It is also about relaying these design and management strategies in the hopes that this knowledge will spread the ecological benefit beyond the actual boundaries of the site. It is about influencing the way people think about and care about their relation to their environment. France argues that the most effective way to help nature is to "motivate and inspire large numbers of people." He claims, "If enough people cared enough, needed reforms would be put in place." Though France believes that fear is an effective motivator, he also believes that positive action can be instigated by love generated from a landscape as well. He writes, "Motivation will come from people's experiences of relatively undisturbed, protected green spaces far from cities, but also from educating and directly engaging people in the recognition and repair of damaged landscapes." He believes that functional art could lead to ecologically sustainable designs that inspire action beyond the site only if they work to attract and accommodate people in the landscape and do not treat human involvement as "ancillary."[79]

Deshpande also sees the central role of people in fulfilling eco-revelatory design's goals. He believes that in order to create landscapes that will attract and inspire, designers need to encourage interaction and offer information about underlying ecological processes.[80] Both agree that by attracting, accommodating, and inspiring, design could help create what Deshpande calls a "cultural sustainability."

[79] France, "Green World, Gray Heart?: The Promise and the Reality of Landscape Architecture in Sustaining Nature." 5-6.
[80] Deshpande, "Design Process to Integrate Natural and Human Systems."

However, France in particular does not believe that creating such landscapes will come easily. He fears that the aesthetic choices made by designers will often not attract nor inspire the large numbers of people needed to instigate positive ecological change. Furthermore, even if the landscapes can attract people, he doubts if they will be able to clearly communicate information about the complex relationships between human and natural systems. However, he doesn't see the task as impossible. First and foremost to advancing eco-revelatory design's goals, he argues, will be for designers to keep their egos, and their desire to impress an artistic elite, from preventing them from communicating to, and influencing the communities that will become the users of an eco-revelatory landscape.

The critics Stephanie Hurley and Megan Wilson agree. In their article, "Great (Wet) Streets: Merging Street Design and Stormwater Management to Improve Neighborhood Streets," they argue that "public acceptance is crucial for ecological street design to gain momentum as a movement." They quote Nassauer as saying: "by first being palatable, landscape aesthetics ultimately can go beyond the merely acceptable to evoke intelligent tending of the land so that aesthetic decisions become intrinsically ecological decisions."[81]

Deshpande also agrees with this argument. He states that the "ecological intentions of the designers will not succeed if the landscape fails to earn enough attention and care from the society." How much people care about and give attention to their landscapes, he explains, is influenced by how people experience and understand them. If they only value water, for example, on the basis of how good it is for swimming, then they will be less likely to appreciate a shallow wetland. However, he argues, aesthetics play an important part in how people

[81] Stephanie Hurley, and Megan Wilson, "Great (Wet) Streets : Merging Street Design and Stormwater Management to Improve Neighborhood Streets," (2004).

approach a landscape. People may appreciate a wetland for its beauty even though it is bad for swimming, if wetlands are culturally accepted as being beautiful.[82]

In his article, "Ecological Design, Urban Places, and the Culture of Sustainability," William Eisenstein argues that non-verbal communication is an important way of relaying messages. It is through non-verbal communication that people derive meaning from their built environment. However, he argues, just as ecological conditions and techniques for sustainable development will change from site to site, certain cues will "only have meaning within a given cultural context." Meanings, he asserts, can be culturally specific and are often local.[83]

Far from being a handicap, however, he claims that local distinctiveness "is usually thought to be crucial to the development of local place values [and the] sense of affection for and loyalty to a specific place." Local place values, he argues, are important because they help people "develop more intimate cultural associations with the features of the landscape that make their place special—the same features that manifest and make meaningful their particular tangible relationship to the larger natural world."

Eisenstein thinks that locally unique features not only tap into people's community pride and sense of place, they also have the potential to relay meaning through non-verbal communication. Eisenstein believes that design has the potential to amplify these features in the landscape "and thereby foster ecologically informed local place values."[84]

Although most of the critics agree on the need for respecting local conditions and sensibilities in the design process they split in opinion when discussing design specifics. While

[82] Deshpande, "Design Process to Integrate Natural and Human Systems." 7.
[83] William Eisenstein, "Ecological Design, Urban Places and the Culture of Sustainability," Spur Newsletter Calendar (2001).
[84] Ibid.

all agree on the need for a certain conspicuousness to enhance non-verbal communication, there are varied opinions on the degree of conspicuousness needed.

While France has his doubts about eco-revelatory design based on what he sees from the exhibition, he still sees potential for an ecological design that marries art and science. However, although he believes it is possible that "the feeling of art and the knowing of science" can be combined in landscape architecture in a way that would educate and inspire people to sustain nature, he believes that neither science and engineering, nor art and design *alone* have done much to inspire and motivate action for the natural world. No one, he says, "would be inspired by a sterile, engineered waterway (like the Los Angeles River) to protect other rivers, just as no one would become dedicated to preserving rainforests because they contemplated a tree clipped to look like a giant puppy." Therefore, he believes that artifice and nature need to strike a balance in order that one does not dominate the other.[85]

France agrees with Thayer's belief that "sustainable landscapes need conspicuous expression and visible interpretation, and that is where the creative and artistic skills of the landscape architect are most critically needed." However, he does argue that many designs that are touted as green may actually hurt the environment, and that one should never forget that a design is no substitute for nature free from human meddling. He also notes that many people have a penchant for naturalistic design saying, "We usually find nature's own functional forms to be supremely beautiful."[86]

Other critics lean more towards a stronger, more obvious aesthetic. Deshpande argues that eco-revelatory designs can only be successful if they are "visible, observable, legible, and

[85] France, "Green World, Gray Heart?: The Promise and the Reality of Landscape Architecture in Sustaining Nature."
[86] Ibid. 4-6.

have the ability to raise curiosity in visitors to explore and understand the complexity of the landscape."[87] Deshpande claims that ecological designs are often hard to recognize because they "blend with their contexts and result in a diffuse visual pattern." If the public doesn't recognize them, he argues, it will be harder to make the public care about them. He quotes Mozingo complaining about ecological designs, which often provide transitions to their surroundings by diffuse edges, saying they are "neither visually appealing nor ecologically valuable."[88]

Agreeing with this position, Eisenstein recommends that while designs should respect local place values, they also should contrast with their settings. He recommends that designs be characterized by clarity, strong noticeable differences, and redundancy. He gives two examples of stormwater infiltration swales to illustrate his point. One, he says, is a grass swale maintained like the rest of the lawn. The other, he says, is marked with native wetland vegetation. Both would reveal an ecological process of rainwater collection and infiltration during storm events, but only one would give a clue to its function when no rain was falling.[89] Finally, Stephanie Hurley and Megan Wilson give recommendations from a survey they conducted in Seattle looking at three different aesthetic approaches for incorporating raingarden stormwater systems along neighborhood streets. The three approaches are: orderly, naturalistic, and expressive. The orderly street design aesthetic uses shallow swales and a regular placement of street trees that helps it blend in with surrounding neighborhoods. Because of the shallowness of the swales the orderly approach uses subsurface systems to detain and cleanse stormwater. The naturalistic street design aesthetic is characterized by native vegetation arranged within open bioretention swales. Plants are selected and placed according to their tolerances for water level fluctuation

[87] Deshpande, "Design Process to Integrate Natural and Human Systems." 25.
[88] Ibid. 26.
[89] Eisenstein, "Ecological Design, Urban Places and the Culture of Sustainability."

and seasonal variations in climatic conditions. Edges are trimmed so as not to convey a "messy" appearance. The expressive street design aesthetic extends property lines into the right-of-way where the swales are located. While neighbors must maintain their own section, they are also given more control over the plant selection for their own parcel.

In these three approaches one can see a continuum representing a more straightforward mitigation approach that blends in with surroundings and hides its purpose, to one that concentrates on revealing natural process, to one that concentrates on revealing cultural preferences. While all three approaches accomplish a regenerative goal, only the last two work to inform and engage the community with the process. Even though one incorporates an naturalistic form, in its urban context it would not blend in with its surrounding, rather it would draw attention to itself and provide a visual reference (natural streams) for its function. The final approach would directly engage the community with the design. It would make property owners eco-revelatory designers who would have to understand the goals and processes of the system in order to design and maintain their section, and would give them a chance to creatively express the process and their individual preferences. Hurley and Wilson argue that naturalistic and cultured landscapes will allow for "a broader range of design expression." Exploring this expression and straying from convention, they claim, will create "the potential to innovate new aesthetic conventions that incorporate eco-revelatory design principles."[90]

Increase Scope

Irene Klaver and Rachel May see the potential for eco-revelatory design to respond to dramatic ecological disturbances. In a draft paper for a New Orleans workshop formed to discuss responses to Hurricane Katrina, they discuss how making both vulnerability and

[90] Hurley, "Great (Wet) Streets : Merging Street Design and Stormwater Management to Improve Neighborhood Streets."

resilience more visible can help people respond to large disturbances or disasters.[91] In their paper, they explore the concept of vulnerability in nature. Although often thought of in negative terms, they claim vulnerability in nature is a positive trait because it allows nature to develop strategies for resilience. Although they do not want to belittle or enhance vulnerability, they do recognize its inevitability. They believe that by making vulnerability evident, they can facilitate resilience by encouraging the development of coping strategies.

First, they want to focus on the positive aspects and possibilities that vulnerability creates. They claim that although vulnerability can leave one exposed and open, it also creates the conditions for change. Vulnerability, they say, "affords the occasions of learning—learning to adapt, adjust, accommodate, or defend oneself."[92] Klaver and May argue that hiding vulnerability can be potentially dangerous because it prevents people from reading the landscape and making judgments about site conditions. They argue that "massive structures like the levees of New Orleans or the World Trade Center towers in New York project such a convincing sense of permanence and invulnerability that even when we know it is illusory, we act as if it were true." These illusions create a complacency that causes us to be caught off guard in sudden disasters. In such events, they argue, normal resources of resilience fail during a disaster. This, they say was evident in New Orleans when, after Katrina, large groups of people were dispersed over a wide area and could no longer rely on their former support networks.[93]

Klaver and May argue that after disaster periods there is often a tendency to try to lull citizens back into complacency with, for example, "comfortingly enlarged levees and

---

[91] Irene and Rachel May Klaver, "Draft Paper for New Directions Katrina Workshop New Orleans March 22-25, 2006
Vulnerability and Resilience: Nola," (2006).
[92] Ibid. 2.
[93] Ibid. 2-5.

strengthened public safety systems." However, for Klaver and May, this is not good enough. They would prefer to see constant cues about vulnerability and self-protection incorporated into any shoring up of protective barriers. Here, they believe that eco-revelatory design can be beneficial by providing those cues.

Instead of, as some have mentioned, restricting rebuilding in flood prone neighborhoods destroyed by Katrina, they recommend changing design techniques to reflect potential flood threat, and alleviate such conditions. Among their recommendations are "eye-catching drainage and stormwater systems, beautiful detention basins and constructed wetlands," homes built to withstand floods with submersible ground floors, elevated access routes, life boats, and elevated platforms where people can gather in a time of crisis. They also would recommend using design cues, such as colored signs or flags, to reveal peak water levels and lead people to refuge sites. The levees themselves, they say, should not just be built as a protective barrier; they should engage the intelligence of the people who live near them by teaching through educational and interpretive walks, museums, and partnerships with local schools "about the cultural and ecological dynamics of the Mississippi Delta."

"Citizens," Klaver and May believe, "who understand their context are better equipped to respond to change."[94]

[94] Ibid. 5-6.

Chapter 4

Further Questions

From their analysis, both invited essayist and post-exhibition critics raise questions about important aspects of eco-revelatory design. The following chapter will examine these questions. The first section relates to the purpose of eco-revelatory design: whether it is better to heal or simply reveal. The second looks at two aesthetic strategies: representation and presentation, and examines which is better for accomplishing eco-revelatory design's goals. Finally, the last chapter questions the assumption that aesthetics may contribute at all towards sustainability.

To Reveal or to Heal (Or both)?

Thayer remarks that although the exhibition's original statement of purpose, to showcase "landscape architecture that reveals and interprets ecological phenomena," does not imply the necessity of healing a landscape or ecologically improving an ecosystem, ecological deign has been traditionally activist and regenerative in nature. He allows for both passive and regenerative approaches in his eco-revelatory design continuum, acknowledging that designs might "be anchored by deliberate *regeneration* or healing of a disturbed ecosystem at one extreme, or at the other extreme, mere passive exposure of viewers or participants to some inner ecological structure or reality, [regardless of] whether that reality is ecologically dysfunctional or not."[95] However, Thayer leans towards those designs that are "highly regenerative and healing."

In Thayer's view, revelation is a necessary step but it does not go far enough. He believes that art may be content to comment on "unstable, unsustainable, or consumptive conditions," but

[95] Thayer, "Landscape as an Ecologically Revealing Language [Exhibition Review]." 128-129.

responsible design should seek to remedy them. He sees healing as the obvious end of a revelatory process, and asks rhetorically, "Why diagnose if not to cure? Why reveal if not to heal?"[96] France agrees. He equates the revelation of a problem without healing to "a physician informing cancer patients that their disease is incurable, but that they might take comfort in contemplating CAT scans."[97]

To illustrate his point, France gives the example of a section of Boston's Muddy River, once part of Olmsted's Emerald Necklace that has been paved over to make a parking lot. He suggests that the site seems like an ideal subject for an eco-revelatory intervention that would combat the issue of 'out of sight, out of mind.'

Next, France compares two different eco-revelatory approaches for the site. One, is to daylight the buried stream, the other is to plant a meandering bed of flowers symbolically retracing the path of the stream that remains underground. France claims that while the first approach would "go far toward restoring the river ecologically," the flowerbed solution would only trivialize the problem. He argues that it "fulfills only one criterion for eco-revelatory design… to reclaim landscapes so that the past is remembered." France wonders if fulfilling this goal is enough when "ecological problems are so urgently in need of remediation."[98]

However, one might ask, is it a danger that in healing a landscape one might change it to the extent that no lessons about past misuse and subsequent remediation are attainable to the public? In contemplating a beautifully restored stream will people forget that it was ever covered up in the first place? Will it make people aware of the destructive side of, and sacrifices made for economic development? Will it allow people to learn from their mistakes?

---

[96] Ibid. 118.
[97] France, "Smoky Mirrors and Unreflected Vampires: From Eco-Revelation to Eco-Relevance in Landscape Design." 39.
[98] Ibid. 39.

Julie Bargmann believes these questions are especially pertinent when dealing with industrial landscapes. She argues that the current reality and culture of today is one of postindustry. "Parks," she says, "need to express that aspect of our culture."[99] Bargmann believes that "it's important for projects to communicate what precipitated them in the first place. They should be both monuments to—and critiques of—the industries responsible for them."[100]

The question seems to be one of aesthetics: how the formal qualities of a site reference and reveal history, evolution and process, and how they captivate, and promote contemplation. In short, will aesthetics promote forgetting or remembrance? Acknowledging this, Deshpande recommends designs that emphasize the contrast between ecological and cultural domains, and leave traces of both ecological processes and cultural history. Second, he believes that "design should transcend a purely visual dimension to become a holistic psychological space…[it should] become a place for visitors that stirs the mind, spirit and human senses."[101] As an example, he offers Richard Haag's Gas Works Park. He claims that by keeping, incorporating, and reframing historical references on site it does more than demonstrate how a superfund site can be remediated to parkland, it "reminds people of their accomplishments and achievements to overcome natural forces and their failure to be in harmony with nature."[102]

Elizabeth K. Meyer agrees with Deshpande. In her essay *Between Terra Firma and Terra Incognita*, she offers two of Haag's projects, Gas Works Park and Bloedel Reserve, as

[99] Daniel S. Levy, "Seeing Beauty in Ugly Places," Time Magazine 156.3 (2000).
[100] Ho, Architecture 89.11 (2000).
[101] Deshpande, "Design Process to Integrate Natural and Human Systems." 25-27.
[102] Ibid.

landscapes that create such a psychological space. Each site, she claims, represents the interplay between human forces and natural ones.[103]

In Gas Works Park Haag leaves remnants of the gasification plant standing in the middle of the park. In Bloedel Reserve, he leaves the moss-covered stumps of a forest, logged nearly a century ago, among the stands of trees. Meyer argues that by leaving the industrial remnants, Haag recalls an industrial era and an immense technological power once cut off from the public, now reframed as part of open greenspace. By leaving the leftover logging stumps he provides truth about the history of a landscape that many, upon first glance, would think pristine and untouched by human industry. These two design decisions, she argues, provide the viewer with a palimpsest that makes them aware of two temporal scales: one human, and one natural. Meyer claims that these two works demonstrate the discordance of the two time scales. They show the abruptness of human disturbances and the gradual change of natural ones.[104]

Both parks recall the destructive power of industry and technology, and the ethical burden it creates. These parks also demonstrate the supremacy of nature, as nature retakes a gasification plant, and a forest grows around the remnants of a clear-cut. This, Meyer claims, is seeing nature retaking the "untakeable," dominating a power that once dominated it. Meyer argues that sensing this, and being in awe of technology for its good and for its bad, being aware of the destructive power of nature and the destructive power of man, evokes a feeling of "operating on the edge." This, she says, is evoking the sublime.[105]

---

[103] Elizabeth K. Meyer, "Between Terra Firma and Terra Incognita," Richard Haag: Bloedel Reserve and Gas Works Park, ed. William S. Saunders (New York: Princeton Architectural Press, with the Harvard University Graduate School of Design, 1998).
[104] Ibid. 15-20.
[105] Ibid. 22.

Meyer argues that the interplay between natural and human forces, between natural and human time scales, between human destruction and natural regrowth "create a set of unsettling uncertainties" that gives each landscape a presence of sublimity. Meyer argues that the sublime is not something we appreciate for its beauty. The sublime, she says, "touches us moves us, but does not please us." She continues to say that the sublime is feelings of fear that don't materialize, it is "between aesthetics and unmediated fear," it is a state of mind, of apprehension and reception.[106] "In essence," she says, "what joins these two projects together is not so much what they are, but what they do to the visitor."[107]

Meyer argues that the sublime exists in the viewer, not the object. She claims it has the power to touch and move the viewer. In this regard, she thinks it can cause people to have a deeper appreciation of their surroundings and the human effect upon the environment. She asks rhetorically, "Can [the sublime] move a subject to a more complex understanding of the interdependence between humans and the land? Can [it]…evolve into a contract of connection that welds emotions, thoughts and actions that transforms individual responses into collective action? Can this sublime engender a different land ethic?"[108]

Meyer argues that the sublime will take one from contemplating a visible subject, the gasification plant for example, to concepts such as technological power—the technological sublime versus natural power, the natural sublime. This in turn will connect us to invisible subjects. She explains, "The mound above and groundwater below the surface of Gas Works Park evokes a sense of the natural sublime contaminated by, and one with, the technological. The boundlessness and interconnectedness of Gas Works' hydrological system challenge any

[106] Ibid. 12-15.
[107] Ibid. 10-11.
[108] Ibid. 23.

pretense to a heroic, progressive rhetoric of the technological sublime,"[109] and in Bloedel Reserve, she argues that the stumps tell the story of the site's logging history, the timber baron who owned the site, the logging history of the region, the consequences thereof, the ecological processes of the region, and the geological and human time scales.

Returning to France's example with Meyer's argument in mind, one might argue that in some regards the flowerbed memorial may produce a more positive ecological effect than previously thought. The ecological benefits of the day-lighted and restored stream may be limited strictly to the immediate site. However, the flowerbed memorial may have a deeper and farther-reaching psychological effect on the public. Not restoring the stream, but rather highlighting its destruction, may arouse feelings in the public and an emotional attachment to a piece of lost history. This emotional attachment may then in turn promote further contemplation on the destructive acts of development, and possibly may lead to community action. The approach that seeks to restore the stream however, may lead to a finished product that people take for granted, just as many in the public forgot the process necessary to create much of Olmsted's Emerald Necklace, including the Muddy River, believing it to be a remnant of natural landscape in an otherwise urban area.

Presentation vs. Representation: which is better for eco-revelatory design?

Brenda Brown suggests that there is a distinction between presentation and representation in the landscape, and that revelation may be based on both. She defines presentation as "directly introducing, offering, and bringing the public to or bringing before the public ecological phenomena, processes, and relationships." Representation she defines as "a secondhand conveyance of specific qualities, characteristics, forms or functions through symbolism,

[109] Ibid. 18.

depiction, or portrayal." Both, she argues, "involve some selection, some interpretation, [and] some abstraction."[110] The question seems to be then: will they produce different outcomes for eco-revelatory design? The distinction between the two words is actually quite murky. For example, one might claim to present aspects of the history of a site, while another might argue that this is only a representation of a past period. The difference seems to be in how the words are used: a distinction between 'creation' and 're-creation'. Webster's II New College Dictionary defines 'present' more in the context of something being offered, a gift. It is "to introduce…to bring before… to make a gift of… to offer." Webster's defines 'represent' as having the core meaning of "to serve as the image of."[111] In essence then, representation is more concerned with appearance, visually, or through other senses, recreating a certain subject. Presentation is more concerned with the act of seeing an idea to completion, and offering that idea to the public.

In this regard, a designer using presentation would desire to present a certain idea, for example the effect of certain development practices on erosion and soil stability, and would work within the realities of the concept and the site. The focus would be less on visual, sensual, historical, or stylistic concerns, unless they were integral to the presentation of the idea, and more on creating a design or artwork that would convey whatever it is the designer wishes to convey. In an eco-revelatory design the introduction of new ideas and functions, and the improvement of unfavorable aspects of a site may drastically alter the landscape visually or functionally, but the goal would not be to mimic the appearance or feel of a pristine natural landscape. Rather it would be to convey practices that may lead to better functioning landscapes, or to contrast the difference between such landscapes, and those altered by human development.

---

[110] Brenda Brown, "Holding Moving Landscapes [Exhibition Review]," Landscape journal (1998). 64.
[111] Webster's 2 new college dictionary (Boston: Boston : Houghton Mifflin Co., 1995), vol.

Representation, on the other hand, would be a re-creation of or a reference to something beyond the realities of a site. For example, it may reference certain landscape ideals found desirable, just as the gentleman farmlands of picturesque England were modeled after paintings of working agricultural landscapes. The landscapes being referenced may be desirable for a number of reasons, from visual, to emotional, to functional. However, the focus would be on recreating an *image* of the reference site.

As far as eco-revelatory design is concerned, the representational approach may create an emotional attachment and affection towards a site as people equate the designed landscape with their associations of its references. However, will it build a better ecological understanding? Will it hide or reveal truths about the landscape? A possible answer may be found when looking at one form of landscape architecture that employs representation: the Picturesque.

In her article for *Landscape Journal*, "Framed Again: The Picturesque Aesthetics of Contemporary Landscape," Susan Herrington argues that by representing picturesque bucolic scenes, landowners of the 18th century were able to conceal their wealth and power. Ideal representations of the English landscape, recreated on large estates, concealed both the harsh realities of the landscapes that were being mimicked, and the large separation between those who owned the estates and the common laborers.[112] This would imply the possibility of dishonest representation, and an outcome contrary to the goals of eco-revelatory design.

Thayer questions if mimicking a landscape is even enough to be eco-revelatory. He recognizes that landscape architecture has a strong tradition of creating sites that are metaphors of the larger region like Japan's rock garden at Ryoanji, and Halprin's Auditorium Forecourt Fountain. However, he questions whether Halprin's Forecourt Fountain, for example, is merely a

[112] Susan Herrington, "Framed Again: The Picturesque Aesthetics of Contemporary Landscapes," Landscape journal 25.1 (2006). 26.

metaphor for a mountain waterfall, or if it reveals more. He asks, “Does it reveal the workings of ecosystems naturally surrounding a waterfall? Does it regenerate or heal the waterfalls that have been destroyed by human impoundment to produce the hydroelectricity to run the very fountain itself?”[113]

To use a specific eco-revelatory example, Thayer cites Blake’s Hattiesburg project from the 1998 exhibition. He wonders if recreating an image of the Hattiesburg region in its pristine natural state will tell the visitors to the welcoming center anything about the real history of the actual site. Would it tell visitors anything about the steps necessary to transform a wetland, filled in for commercial development and covered by invasive exotics back into a “natural” wetland and riparian hardwood forest? One might even question if this intervention is ecologically sound. Where does the fill dirt excavated from the site end up? Does it contain a seed bank of invasive exotics that are now spreading in a new location? How much energy is required to recreate and maintain this landscape? And, following Galatowitsch’s concerns, do the ecological gains from the recreation of this landscape meet expectations? Do they offset the costs of construction? In the end, Thayer asks if anything is being done beyond a grand design scheme marking the traits of a region.[114]

However, it could be argued that Blake’s design may be beneficial because it could inspire others to recreate or protect the pristine areas it mimics. However this could also be a source of problems as well. Images of ideal landscapes may gloss over realities and reinforce stereotypes. The choice of landscape being mimicked and the method of recreating the target

[113] Robert L. Thayer, "Landscape as an Ecologically Revealing Language [Exhibition Review]," Ibid. (1998). 123.
[114] Ibid.

landscape will be important factors in the design's success as an example of eco-revelatory design.

Designers must be careful that the images they wish to portray are indeed ecologically sound. For example, a typical West African farm consists of multiple layers of crops. Cocoa and palm trees form an upper story, and mixes of peppers, corn, and yams cover the ground. Though this practice provides multiple income sources that produce throughout the year, protects farmers from the disaster faced when diseases hit monoculture cropland, protects soil from erosion, and creates habitat, it does not fit in with the image of a picturesque farmstead with tidy hedgerows, clipped lawn, and regularly tilled rows. However it is much more ecologically sound. In the case of the tidy farm, image belies reality.

However, one might argue that designers could focus on representing landscapes that are ecologically healthy. This is possible, but the designer must also relay honestly the true cost of such a recreation. What input will be required, in terms of time, herbicides, and ecological damage, to recreate an image of an ecologically and culturally functioning landscape? Though ecological gains may be a broad concept ranging from quantifiable data to changes in perception and education, it could be a starting point for evaluating designs with ecological sustainability as a goal. If the designer is attempting to recreate a landscape that does not necessarily pertain to the site he or she is working on, there may be no guarantee of ecological gain compared to energy input, or the ability to honestly reveal realities of a site.

In his book, *Between Landscape Architecture and Land Art*, Udo Weilacher argues against landscapes that reinforce a "Romanticism of untouched beauty."[115] He argues that this encourages an emotive response that often puts nature at risk. This he warns may cause people to

[115] Udo Weilacher, Between Landscape Architecture and Land Art (Boston: Basel, 1999). 11.

overvalue one type of landscape at the expense of another. This is evident, he claims, in how people overuse and damage pristine nature in their attempts to appreciate it, and how people consider disturbed landscapes as "lost" and not worth appreciation, or care. For example, national parks suffer from overuse by people "trying to get away from it all." In their love of certain landscapes, like ocean fronts or mountains, people inadvertently destroy part of what they love by building get-away homes and encouraging the types of development such as widened mountain roads, utilities, and commercial development that come along with them.[116]

William Cronon, in his essay "The Trouble with Wilderness," claims that these romantic conventions make people privilege some landscapes over others.[117] Cronon argues that if one places wilderness totally outside of the human sphere, then human presence represents wilderness's fall. He argues that if wilderness leaves no place for people, then it also offers no solutions to environmental problems and leaves little hope of discovering a sustainable human relationship with nature. Cronon claims that the romantic notion that imagines wilderness as a sacred part of human being causes people to undervalue and deny responsibility for the lives they actually lead and the homes they inhabit. He argues that this escapism proves a serious threat that may cause areas already 'fallen' to human domination to be denied the environmental stewardship they need, thereby provoking environmental injustice for those who can't afford to escape farther into the frontier.[118]

Cronon thinks that people should realize that they are tied to the ecological systems that sustain their lives, not the pristine ones they wish to escape to. Idealizing wilderness, Cronon claims, causes one to ignore or undervalue the 'non pristine' areas where they live. By

---

[116] Ibid.
[117] William Cronon, "The Trouble with Wilderness," Uncommon Ground : Toward Reinventing Nature, ed. William Cronon (New York: W.W. Norton & Co., 1995). 86.
[118] Ibid. 80-84.

reinforcing a feeling that beauty lies elsewhere, people do not look for the possibility of beauty in the landscapes they inhabit. They either seek to mimic an image of a stereotype of beauty (green lawns in Phoenix, for example) or periodically attempt to escape to it.[119]

Perhaps, for simplification purposes, this argument could be reduced to designs that use a naturalistic style and those that are more expressive of their intent. While this is only a subset of the argument of presentation versus representation, it encapsulates specific arguments relative to eco-revelatory design. It at least partly explains the difference in perceived success between Bargmann and Levy's Vintondale project and Blake's Hattiesburg project. The former incorporated clear geometries and unmistakably man-made forms that conveyed both the intent and process of the design. It was cited by the exhibition essayists generally in glowing references, and produced multiple articles in many publications, ranging from *Metropolitan* to *Time*, becoming the poster-child of the eco-revelatory design genre.[120] Blake's design, however, was one of the more criticized of the exhibition projects. It used a very naturalistic style that some of the essayists argued masked its intent and inner workings.

Recognizing the naturalistic/man-made dichotomy also allows eco-revelatory design to accomplish two of its goals. By emphasizing designs that highlight aspects of nature but are not simply reproductions of it, eco-revelatory design encourages full exploration of both art and ecology and can serve as a bridge between the two. Good eco-revelatory design should allow for creative aesthetic exploration and should not be judged by how closely the finished work visually resembles a natural landscape, or a stereotypical ideal one.

---

[119] Ibid. 86-87.
[120] Julie Bargmann and Bay Brown, "Talking Trash with Julie Bargmann [Interview]," Architecture 93.10 (2004).

Secondly, it bridges the bi-polar man/nature relationship, which sees man and nature acting outside each other's influence. It is this view that celebrates the purely man-made feats of architecture, and the pristine, untouched nature of wilderness areas, but leads to the underappreciation and care for the gray areas in between.[121] Good eco-revelatory design should strengthen the view that man and nature are never disconnected and both have the power to affect each other both negatively and positively.

As Brown suggests, revelation may be based upon both presentation and representation in the landscape. However, the revelations created by these approaches must give people the knowledge to create working relationships between human systems and natural systems in order to fulfill eco-revelatory design's goals. They must be honest in the ecological perception they give of themselves, they must widen the public's acceptance of different landscapes—most notably the ones closest to home, and they must encourage an affection and emotional response that is tempered with ecological understanding.

Can Aesthetics Encourage Sustainability?

Eco-revelatory design seeks to combine scientific understanding of the natural environment with artistic expression to create an aesthetic experience, tempered with knowledge, which will encourage an informed affection towards the environment. In short, it uses science and art to foster a sustainable ethic.

Supporters of eco-revelatory design believe that making natural processes visible will teach the public about their relationship to these processes. This visibility is assumed to give people a better understanding of their environment and, in theory, a better understanding of the environment will develop an appreciation which will lead to a sustainable ethic.

[121] Cronon, "The Trouble with Wilderness."

One of the assumptions that eco-revelatory makes is that understanding will be learned through reading the landscape. It uses artful manipulations of the landscape to make natural processes and their relationship to human actions more visible. It asserts that teaching will not come from the addition of interpretive signs or experienced guides, but from the landscape itself.

It may be good then to question whether or not an artfully designed landscape can act not only as a classroom *for* teaching, but play an active teaching role *itself*. Furthermore, if the intent of this non-verbal communication is to make one question or alter one's behavior then it is worthwhile asking whether or not aesthetics have the ability to communicate anything to anyone and if this communication will result in any positive change. One must ask then, what ability does aesthetics have to affect behavioral change and instill in the public a sustainable ethic? Can art instruct?

Interestingly enough, this question was not addressed in the 1998 exhibition. However, a few subsequent writers on the subject have explored the issue. Eisenstein complains that eco-revelatory designs often are assumed to have the same outcome in terms of the ecological education of the user, even though they vary drastically in terms of subject and approach. This, he argues, underlines how undefined the presumption of design's ability to have a significant psychological and educational impact actually is. He complains "visibility of ecological process in design is often assumed to be adequate for people to develop ecological perspectives, without considering in detail how such a thing might occur." Without this knowledge, he asks, "how, can we ensure that lessons about not only ecological processes themselves, but also the relationship between ecological processes and urban life, are available to the users of [a built] environment?"[122]

[122] Eisenstein, "Ecological Design, Urban Places and the Culture of Sustainability."

He suggests that one follow the lead of environmental psychologists and architectural researchers and look at the theory of non-verbal communication and how it relates to the built environment. The theory of non-verbal communication holds that people receive non-verbal messages from the environment in much the same way as they do when they interact with other people. Facial expressions, gestures, clothing, and personal appearance send powerful signals.

Eisenstein argues that the built environment is itself a powerful form of non-verbal communication. The built environment has a large number of non-verbal cues such as height, size, color, materials, details and decoration that are used to communicate cultural meanings and behavioral expectations if interpreted properly. He cites "cathedrals, imperial palaces, and corporate headquarters" as examples of built environments that often use design cues to relay meanings of sacredness, power, and cultural importance. He suggests that clarity, distinctiveness, and redundancy are necessary characteristics for cues to communicate effectively. Furthermore he acknowledges that these cues may "only have meaning within a given cultural context."[123]

However, eco-revelatory design tries to relay meanings that are not as readily accessible as "sacredness" and "power." There is not a cultural tradition of relaying non-verbal cues about soil toxicity levels, native plant restoration, and rainwater infiltration. How then can eco-revelatory design accomplish its goal of relaying scientific information about natural processes? And how can it accomplish its ultimate goal of trying to instill a sustainable ethic into those who experience it?

A possible answer emerges when one examines the nature of an ethic of sustainability. This thesis asserts that an ethic of sustainability is both emotional and cognitive. It may be entirely possible that one might choose to act sustainably out of a purely emotional response

[123] Ibid.

whether it be love of the land, love for future generations, or love of whales and pandas. It also may be possible to make sustainable decisions through a cognitive approach based on self-interest, especially if one ties a healthy environment to one's self-interest or thinks of the ultimate promotion of the species as a form of self-interest. However, it is arguable that acting sustainably is a mixture of both. Making sustainable decisions may be influenced by self-interest, but short-term self-interest is often sacrificed. Some decisions may even have negative short-term consequences. For example, managing one's own stormwater may be a huge investment of time, energy, and money, especially when a municipality will manage it for free. It may also be a risk if new stormwater systems are untested technology. One might end up with a mosquito hatchery or a flooded back yard. These decisions, and arguably most sustainable decisions, are made out of scientific knowledge about proper ecological function *and* an emotional desire to help the environment even if it is not in one's best, immediate self-interest.

Why does this matter? Marcia Muelder Eaton, in her article *Philosophical Aesthetics: A Way of Knowing its Limits*, argues that art produces an aesthetic experience that is both an emotional and cognitive response. In short, art can induce emotions *and* critical thinking.[124]

That aesthetics and ethics might be so tightly connected is hardly a new concept. For the ancient Greeks, the sphere of ethics was not distinguishable from the sphere of aesthetics.[125] Therefore, if a sustainable ethic is both an emotional and cognitive response, and an aesthetic experience is both an emotional and cognitive response, then perhaps art is better at creating a sustainable ethic than pure scientific information alone.

---

[124] Marcia Muelder Eaton, "Philosophical Aesthetics: A Way of Knowing and Its Limits," Journal of Aesthetic Education 28.3, Special Issue: Aesthetics for Young People (1994).
[125] Webster's Third New International Dictionary of the English Language, unabridged, ed. Philip Babcock and the Merriam-Webster editorial staff. Gove (Springfield, Mass: Merriam-Webster, 1993), vol.

The question then, is whether or not eco-revelatory designs can produce an aesthetic experience. Eaton defines an aesthetic experience as something that occurs when one experiences an "art object."[126] She defines art objects as: "X is a work of art if and only if x is an artifact and x is treated in ways such that attention is focused on intrinsic properties of x considered valuable in the aesthetic traditions of a culture."[127]

Landscapes have a tradition, at least in Western civilization, of being classified as art objects, capable of producing aesthetic experiences, for example, the sublime. But what about the processes that take place in these landscapes? Has Western civilization ever held erosion, or run-off, or detoxification as subjects of art appreciation?

Fortunately for eco-revelatory design, there is a tradition in Western culture of asking whether or not an artist's intention needs to be understood in order to evaluate an artwork.[128] Furthermore landscape architecture has a history of works created with the intention of fulfilling political, moral, or religious functions. Eaton even argues that separating the intended function from the artwork diminishes the artwork's value.[129]

However, the problem still exists for eco-revelatory design in that there is no strong tradition of relaying information on natural processes or a sustainable ethic. In fact many of the traditions of landscape architecture run counter to these ends. Landscape architects traditionally sought to dominate nature. Even in the case of vernacular landscapes that may convey a meaning—for example, a tidy farm may relay information on the perceived moral character of its inhabitants—stewardship often runs counter to sustainability.

---

[126] Eaton, "Philosophical Aesthetics: A Way of Knowing and Its Limits." 20.
[127] Ibid. 26.
[128] Ibid. 29.
[129] Ibid. 25.

The problem, argues Robert S. Fudge in his article, *Imagination and the Science-Based Aesthetic Appreciation of Unscenic Nature,* is that too often there is an overemphasis on aesthetic properties. He worries that overemphasis on the aesthetic appreciation of nature can lead to our neglect of other, less scenic parts. How does one remedy this? Fudge suggests that aesthetic appreciation be tempered with scientific knowledge.[130] Eaton also suggests that science is important to the aesthetic experience if one wants to generate the right sort of care.[131] For instance, aesthetic appreciation of forests based upon an experience in a mature hardwood forest may lead to a lack of care for successional forests and their role in the larger environment. Fudge cites an argument that claims scientific knowledge is necessary to the aesthetic appreciation of nature. This argument states that knowing the context in which certain elements in nature occur increases our appreciation of them, or at least our possibility of appreciating them. Fudge also claims that science and aesthetics do not have to be entirely separate. He says there is a "historical tradition of extolling the aesthetic virtues of systems", especially systems that are self-sustaining and self-regulating, for instance ecological systems. He says that ecological systems have qualities such as order, regularity, harmony, balance, tension, conflict, and resolution. These qualities are as much aesthetic as they are scientific and if science discovers or uncovers these items then it could lead to greater aesthetic appreciation of nature.[132]

The question is then: can the intentions of eco-revelatory design, intentions that are grounded in scientific knowledge, be successfully integrated into a work of art? Can scientific knowledge and art mix? Does the addition of science enhance or diminish the aesthetic

[130] Robert S. Fudge, "Imagination and the Science-Based Aesthetic Appreciation of Unscenic Nature," Journal of Aesthetics & Art Criticism 59.3 (2001). 275.
[131] Marcia Muelder Eaton, "Fact and Fiction in the Aesthetic Appreciation of Nature," Journal of aesthetics and art criticism 56.2 (1998). 149.
[132] Fudge, "Imagination and the Science-Based Aesthetic Appreciation of Unscenic Nature."

experience? This is important to the goals of eco-revelatory design. If artists and landscape architects want to induce an aesthetic experience that will foster a sustainable ethic, then they will need art objects that can produce these experiences. If mixing science with art produces a diminished aesthetic experience then eco-revelatory design's promise is greatly diminished as well. If it is only "watered down" science and "watered down" art, and produces less understanding than each, then why should those who want to work towards sustainability waste their time with it?

Central to this discussion is the assertion that in nature, where human responses do not involve considerations about artistic intention, imagination plays a central role in aesthetic appreciation.[133] Even though eco-revelatory designs are designed landscapes, which have a tradition of including artists' intentions, they often seek to reveal and rely on natural processes. Therefore, it is necessary to understand how one aesthetically appreciates nature to determine if science helps or hinders this process.

Eaton explains that many philosophers agree with "Immanuel Kant's position that central to human aesthetic pleasure is…a 'free play of imagination.'" Kant argued that aesthetic experiences are marked by disinterestedness. "We put aside ordinary scientific, ethical, or personal interests and respond to objects as we please. We allow our imaginations full rein. We are free to think of a tree as a person or an animal or a tower or a mountain or whatever. And this gives us, according to Kant, tremendous pleasure." In this sense, imagination is not just 'making believe', but "visualizing or otherwise coming up with ranges of possibilities." [134]

If imagination is central to an aesthetic experience of nature, the arguments against mixing science and imagination are as follows:

---

[133] Eaton, "Fact and Fiction in the Aesthetic Appreciation of Nature."
[134] Ibid. 150.

1) It will not allow one to distance oneself from, or think beyond the practical concerns of an object.
2) Science is not needed to appreciate an object aesthetically. People can appreciate aesthetic qualities of nature with little or no scientific understanding.
3) It will place scientific interests above aesthetic ones.
4) Mixing aesthetic and scientific values will diminish the role of imagination.

Argument One: The Importance of Distance

Aesthetic appreciation is often linked with a distancing of oneself from the object or event one perceives. In his article *The Aesthetic Experience and the Revelation of Value,* Jeffrey Petts explains how imagination and aesthetic experience are informed by an "aesthetic attitude." He states that often this attitude is associated with a disinterest, or distance from the object being perceived.[135] Eaton further explains that aesthetic experience is a "disinterested (i.e., nonpractical) attention to the formal qualities of objects and events."[136] An aesthetic attitude requires one to put aside ordinary concerns and concentrate on the intrinsic properties of the object, generally speaking, the formal qualities. In theory, this 'separation' is a benefit because it clears one's mind of outside limitations and allows one to freely explore an object or event with one's imagination.

Petts states that there is an argument over the nature of "disinterested attention." He cites the philosopher George Dickie as a critic of the distanced aesthetic attitude. Dickie claims that what is called distance is really *paying attention*.[137] Following this argument "detachment" means becoming "involved with the object in such a way that the self 'becomes absorbed in what

[135] Jeffrey Petts, "Aesthetic Experience and the Revelation of Value," Journal of Aesthetics & Art Criticism 58.1 (2000).
[136] Eaton, "Philosophical Aesthetics: A Way of Knowing and Its Limits." 25.
[137] Petts, "Aesthetic Experience and the Revelation of Value." 64.

it contemplates and explores.' There is an active engagement with the object, which excludes everything external to it."[138] This would mean that aesthetic appreciation involves a *hyper-focus* on the qualities of nature. Eaton supports this argument. She believes that because science may deepen the knowledge of certain aspects that are already partly understood, it can strengthen the focus on an object.[139]

Argument Two: Is Science Needed?

In her article *Scientific knowledge and the Aesthetic Appreciation of Nature* Patricia Matthews argues that a problem with the idea of science enhancing aesthetics is that people may aesthetically appreciate nature without any scientific understanding of it.[140] A rainbow is beautiful even to those who know nothing about the processes that create it. When people look at a waterfall without any scientific understanding of how it was formed, or the ecological role it plays, they still find it beautiful. However, Matthews suggests that, generally speaking, people approach nature with at least *some* understanding of it. Most would, she suggests, know that a waterfall is *falling water*. This is common sense, says Matthews, but it is also empirical knowledge.

Since empirical knowledge is scientific knowledge, Matthews asks where the line can be drawn between simple empirical knowledge and more complex scientific knowledge. How much knowledge would be too much? She theorizes that there is no magic line between the two, rather

[138] Robert S. Fudge, "Imagination and the Science-Based Aesthetic Appreciation of Unscenic Nature," Ibid.59.3 (2001). 277.
[139] Eaton, "Fact and Fiction in the Aesthetic Appreciation of Nature." 154.
[140] Patricia M. Matthews, "Aesthetic Appreciation of Art and Nature," British Journal of Aesthetics 41.4 (2001).

scientific knowledge of the natural world is only a finer grained and richer theoretical version of one's common, everyday knowledge of it.[141]

Though he agrees with this assumption, Fudge finds it troubling. He wonders if the knowledge that one is perceiving falling water in a waterfall and *not* falling sand is sufficient to ground one's aesthetic appreciation. He wonders if there will be a difference in an aesthetic appreciation informed by a weak scientific understanding and one informed by a stronger, more complex understanding. However, he does recognize the difficulty in determining exactly when scientific knowledge is sufficient. He offers the solution that "knowledge is aesthetically relevant precisely when it allows us to perceive properties of a piece that we ordinarily would not perceive without the knowledge, and perceiving those properties affects our aesthetic appreciation."[142] This is in line with Matthew's argument that while empirical knowledge does not tell one everything aesthetically valuable about an object it does help to reveal aesthetic properties.[143] Therefore, they say, as long as science helps us perceive and delight in properties that we would otherwise overlook it is relevant to the aesthetic appreciation of nature.[144]

Fudge is careful to point out that one may appreciate natural objects without any scientific knowledge of them, but that science always has the power to enhance aesthetic appreciation. This is just as true in nature as it is to music, where musical theory may enhance our appreciation of a symphony, or to soccer, where knowledge of the game may transform it from boring to beautiful.

Eaton argues that if science can not only deepen our knowledge of certain aspects of an object, but also open up entirely new ways of seeing an object, then it will enhance the aesthetic

---

[141] Ibid.
[142] Fudge, "Imagination and the Science-Based Aesthetic Appreciation of Unscenic Nature." 282.
[143] Matthews, "Aesthetic Appreciation of Art and Nature." 38-39.
[144] Fudge, "Imagination and the Science-Based Aesthetic Appreciation of Unscenic Nature." 282.

experience. “In learning what to look for, we achieve the very possibility of seeing—and seeing is surely essential to an aesthetic experience. Seeing something is more likely if we look for it, and we look for it only if we know where and what to look for.”[145]

Argument Three: Scientific Value vs. Aesthetic Value

Some philosophers worry about the consequences of mixing science and aesthetics. They fear that since scientific knowledge is pursued for practical applications, a science-based focus on an object will cause one to “care more about the object instrumentally and ignore its aesthetic value.” Therefore, grounding aesthetic appreciation in science may undermine appreciation rather than enhance it.[146]

As to whether or not science will cause us to care more about an object instrumentally than aesthetically, Fudge suggests that “our valuing something scientifically is very different from our valuing it aesthetically; we value something scientifically because it contributes to our knowledge or has instrumental value, while we value something aesthetically simply in virtue of the kind of experience perceiving or contemplating it brings to us.”[147] Eaton argues that as long as scientific knowledge directs perception towards the intrinsic properties of an object, aesthetic value will not be trumped by instrumental, ecological, historical, or cultural values. At the same time, Eaton urges us not to try and carve out a separate niche for aesthetic value. She says that “human valuings are holistic; we rarely experience something purely aesthetically or purely ethically or purely religiously or purely scientifically, etc.”[148]

[145] Eaton, "Fact and Fiction in the Aesthetic Appreciation of Nature." 154.
[146] Fudge, "Imagination and the Science-Based Aesthetic Appreciation of Unscenic Nature." 280.
[147] Ibid. 283.
[148] Eaton, "Fact and Fiction in the Aesthetic Appreciation of Nature." 155.

Argument Four: Will Imagination Be Diminished?

The question still remains, however, as to whether or not including science will diminish the role of imagination, and ultimately the strength and appeal of an aesthetic experience. Fudge lists the writings of Emily Brady as being particularly supportive of this argument. He says Brady believes that one should aesthetically appreciate nature through a model based on perception and imagination.[149] Brady fears that "the cognitive model of aesthetic appreciation of nature in its restrictiveness precludes access to the richness of imaginative insight."[150]

Brady claims that these insights amount to "aesthetic truths." She suggests that insights which lead to aesthetic truths are "appropriate" or are acts of 'imagining well'. Imagining well she explains, "involves spotting aesthetic potential, having a sense of what to look for, and knowing when to clip the wings of imagination."[151]

Fudge says that this line of thinking is problematic because one would need to know what it means to spot aesthetic potential, a way of knowing what to look for, and how to know when one should "clip the wings of imagination."[152] According to Fudge, one would not be sure if one was hindering or helping aesthetic appreciation if one was just as likely to see ice cream cones out of mountain tops as they were to see constellations out of stars (his examples).

Eaton takes note of Brady's argument that insight leads to aesthetic truths. If this insight leads to aesthetic truths, Eaton argues that there would also be the possibility of aesthetic "falsities." This would suggest the possibility of imagining wrongly. In clarifying what an incorrect imagination would entail, Brady suggests that inappropriate insights are characterized

[149] Fudge, "Imagination and the Science-Based Aesthetic Appreciation of Unscenic Nature."
[150] Eaton, "Fact and Fiction in the Aesthetic Appreciation of Nature." 152.
[151] Ibid. 152.
[152] Fudge, "Imagination and the Science-Based Aesthetic Appreciation of Unscenic Nature." 280.

by self-interest, shallowness or naivety. Inappropriate responses might impoverish rather than enrich appreciation.

However, Eaton suggests that the questions about the naivety of certain responses cannot be answered without relying on some sort of cognitive model. “Concepts such as imagining *well* make no sense unless one knows what the object is that one is talking about.”[153]

Fudge also weighs in on this argument. He says that since aesthetic appreciation involves seeing an object’s intrinsic properties, aesthetic properties would be more salient with a science-based approach that helps us see “objects as they are in themselves.”[154] Seeing faces in tree bark, or lambs out of clouds in fact could give the impression that natural objects by themselves are not worthy of aesthetic admiration.

Again, Eaton suggests that as long as scientific knowledge directs perception of and reflection upon the intrinsic properties of an object, scientific knowledge will add to, and not subtract from, aesthetic appreciation. Fudge demonstrates one way this might work, giving the sublime as an example. He uses a stone, worn down smooth by waves, to illustrate his point. He says that the smooth surface of the stone might lead us to think about the power of the ocean. The stone’s intrinsic formal properties, in this case, its smooth surface, would lead us to a revelatory experience that connects the stone with a subject far more vast and powerful than the experience of simply holding it.[155] However, some basic scientific knowledge would be necessary to direct attention to the ocean. It is still entirely possible that one might use solely imagination to come up with an equally sublime response, and it’s entirely possible that one might use incorrect scientific knowledge to come up with an equally sublime response—the rock

[153] Eaton, "Fact and Fiction in the Aesthetic Appreciation of Nature." 152.
[154] Fudge, "Imagination and the Science-Based Aesthetic Appreciation of Unscenic Nature." 282.
[155] Ibid. 281.

might have been formed by a volcano. All three approaches could leave one reflecting on the smoothness of the stone, how it was formed, and how it reflects its past. This simply demonstrates that scientific knowledge may add to the range of aesthetic appreciation of an object or event. In the realm of aesthetic appreciation there may be no inappropriate imagination. One might still choose to imagine whatever they like, but one might also allow science to direct the imagination.

Knowing art theory, an artist's intention, or art history may not guarantee that one appreciates or is moved by a piece of art, but it does offer different ways of broadening or deepening the aesthetic appreciation of that object. If scientific knowledge works the same for nature then it likewise will produce a greater realm of possibilities for aesthetic appreciation. This is especially important if one's goal is developing a sound sustainable ethic and care for the environment.

Eaton is quick to reiterate the importance of the imagination in developing a "sound nature aesthetic." She cites Judith H. Heerwage and Gordon H. Orians as having described three stages in the examination of unfamiliar landscapes. The stages are as follows:

1. One decides whether to explore or move on.
2. If one decides to stay and explore, one then begins to gather information.
3. Finally one decides whether to stay longer or move on.[156]

Eaton claims that imagination plays a large role in the first step of drawing people in, and one might add, in keeping them there.

[156] Eaton, "Fact and Fiction in the Aesthetic Appreciation of Nature." 153.

The task then, is to take the delight people have in imagination and connect it to solid cognitive understanding of sustainable environments in order to produce the kinds of attitudes and preferences that will generate the kind of sustainable care eco-revelatory designers hope for.

Chapter 5

Evaluations and Findings

In order to evaluate post-exhibition works of eco-revelatory design, a working definition of eco-revelatory design has to be cemented. Eco-revelatory design's definition, as written in the opening pages of the 1998 *Landscape Journal* publication, "landscape architecture that reveals and interprets ecological phenomena," is rather broad. From an examination of the exhibited projects, and the praise, criticism, and recommendations of the essayists, this thesis narrows the criteria for eco-revelatory design. It asserts that works should not just express aspects of a site that give people a better understanding of the ecological processes and/or a better understanding of the connection between human practices, infrastructure, and the environment. Projects will only be considered whose form is generated by the phenomena and the processes the designer wishes to reveal, *and* by the desire to consciously communicate these processes to the public. Therefore works that hide infrastructure, or focus more on visual representation of a set image instead of presenting the functional purpose of a site were not considered.

Projects reviewed were limited to those published in *Landscape Architecture* magazine. This study was limited to those projects that were built, not just proposed. In addition, this thesis evaluated only projects that were not already published in the 1998 *Landscape Journal* publication. Finally, this thesis evaluation will be limited to those works published between 1999, the year following the exhibition, and December of 2006.

Landscape Architecture was chosen for a variety of reasons. First, it is the leading publication, in terms of subscribers among landscape architects in the United States. Second, it

covers a broad range of subjects from planning to art, ecology, and construction details. Third, it tends to concentrate on built works, and therefore gives one a good idea of the actual state of landscape architecture as a profession and the trends it may be following. The magazine provides a broad look at the field from different angles and provides different perspectives from which to see eco-revelatory design.

From these parameters, twenty articles, on twenty different designs were chosen for the evaluation. For a complete list of all the articles, and a brief description of each, please refer to the appendix.

Evaluation will be formed around two themes. The first will attempt to gauge eco-revelatory design's performance based on its adherence to recommendations set by essayists and post-exhibition critics. The second will use Robert Thayer's set of continuum, discussed in chapter two, to evaluate the way in which eco-revelatory design has grown since the exhibition and to see if it has had any sweeping change in focus from the earlier projects.

Performance Evaluation:

Both essayists from the exhibition and post exhibition critics gave a wide range of critiques from the particular to the broad. They also provided a series of recommendations to fix what they saw were some of the principle shortcomings of eco-revelatory design. Their recommendations followed four major trends, which this thesis will classify as: increase visibility, increase scope, incorporate scientific research, and provide for the human experience.

The projects selected for this evaluation will be evaluated to see whether or not they fulfill these recommendations. What follows is a brief description of each recommendation, a description of how well the selected projects met each recommendation, and an example of projects that succeeded in doing so.

Recommendation 1: Increase Visibility

Most critics recommended that if eco-revelatory design was to accomplish its goal of making natural processes more visible it would have to utilize a strong aesthetic that could clearly convey what the designer wished to reveal. Although critics cautioned designers to respect and incorporate local aesthetic preferences, many recommended that designers stray from the naturalistic style often found in landscape architecture to make sure that eco-revelatory designs would not blend in and be absorbed by their surroundings. This also supported eco-revelatory design's goal of bridging the gap between art and ecology in landscape architecture by encouraging designers to make aesthetic explorations and not rely on stylistic conventions.

Overall the projects selected for this evaluation incorporated a highly visible aesthetic that revealed the designer's hand and contrasted sharply with their surroundings. However it must be noted that refining eco-revelatory design's definition to projects that "desire to consciously communicate processes to the public" slants the field in favor of visibility. Of the twenty projects selected, all twenty relied heavily on formal characteristics created from a desire to relay certain processes to the public in a highly visible manner.

An example of this is a large installation between an interstate highway and the Don River near Toronto. Large objects shaped somewhat like molars and built from recycled plastic act as containers for an elevated wetland. A solar panel, mounted on side of highest container pumps polluted water up from the river and into the wetlands. Plantings on the molars are an abstraction of the regional ecosystem that ranges from alpine forest marsh on the higher "molars" and descends down to shortgrass prairie bog on the lower ones. The design contrasts a healthy

ecosystem with the polluted Don River in the background, provides visitor access and the chance for exploration, and showcases possibilities for recycled plastic. [157]

Recommendation 2: Increase Scope

Many of the critics recommended that eco-revelatory design expand the scope of the subject matter it wished to reveal. Many felt that eco-revelatory design would only remain relevant so long as it could continue to reveal aspects of the built and natural world that eluded perception, and in general they saw a need to deal with issues less visible than water.

Projects were less successful in fulfilling this recommendation. Only forty percent explored issues not related to water. One selection that succeeded in expanding the scope of eco-revelatory design was a project by George Hargreaves entitled “Markings.” The design, a temporary installation in San Jose, California, examined how eco-revelatory design can be used to reveal not just ecological processes, but human infrastructure and forgotten cultures as well. For the project Hargreaves painted 24 pylons supporting an overpass with reflective silver paint to catch daylight. He then applied words in both English and in the Native American language, Karuk. Karuk words faced the natural landscape of the river, and the English words faced the street. Through this he hoped to highlight both a forgotten place and the forgotten culture that preceded modern San Jose.[158]

Recommendation 3: Incorporate Continued Research

Critics also saw eco-revelatory as an opportunity to consider how design complements other ecological strategies, and to examine the effectiveness of design at environmental problem solving. To achieve this, they recommended incorporating research experimentation

---

[157] Paul Bennett, "Slouching Towards Toronto: Public Art Meets Public Science in an Ecologically Revelatory Work by Canadian Artist Noel Harding," Landscape architecture 90.3 (2000).

[158] Vernon Mays, "2002 Asla Awards," Ibid.92.11 (2002).

opportunities into the planning process of a design. By testing the effectiveness of certain design solutions designers could adjust their designs to work more efficiently, convince outside professions of the benefits of design for ecological problem solving, and truthfully convey to the public the extent of the design's functions.

Of the selected projects thirty percent incorporated continued research. Often however, even where it occurred, research was not expressed in the formal elements of the selected designs. An exception to this was artist Paul Cooper's submission to the 2002 International Garden Festival at Grand Métis Quebec. His entry 'Eden Laboratory' is described as a plant torture chamber that puts plants in extreme positions in order to express the effects of sunlight (phototropism), gravity (geotropism) and water (hydrotropism). In this project, the research and its outcome is an integral part of the design itself.[159]

Recommendation 4: Provide for Human Experience

Critics believed that projects should not be presumed to be ecologically sound if they failed to address human experiences. A design would not be safe from neglect and harmful alteration if it did not appeal to the public's sensibilities; nor would it convey any meaning or understanding unless people were first attracted to the landscape and kept there long enough to develop an understanding of it. By providing intriguing, safe, and comfortable places, designers could create the environment where people might come to, learn from, and be inspired to create a cultural sustainability. They also believed that designers would need to encourage interaction with these landscapes for a better understanding of ecological processes to occur.

Of the twenty projects, every one worked hard to attract and accommodate people. Most often this was accomplished by being accessible—both physically and aesthetically. However,

[159] Dianne Bos, "The Artful Garden: The International Garden Festival 2002 at Grand Mètis, Quèbec Blurs the Boundaries between Art and Landscape Design," Ibid.12.

one particular design went a step further to ensure a deeper interaction between the public and the hydrological process it was trying to reveal. This project, built near Chesapeake Bay, designed a raingarden to be incorporated into a playground. The design used strong, architectonic forms, built by neighborhood volunteers, which encourage children to interact with the design by doubling as play equipment. These forms convey water from the site to collection and infiltration areas. Children form a final link in the hydrology of the site by pumping water collected in a cistern into a series of troughs, which carries it away to a tributary.[160]

Performance Evaluation Conclusions:

This evaluation demonstrates that following the exhibition, eco-revelatory design is strong in both the visibility and human experience categories, though it should be noted that this is not significantly different from the exhibition projects. The focus of eco-revelatory design has also not radically changed. In the exhibition, roughly 75% of the projects dealt in some way with water. In this thesis evaluation, designs that involved revealing some aspect of water accounted for 60% of the total projects. However, significant gains were made in the continued research category. Although not representing a majority of the projects, designs that incorporated some type of continued research or monitoring accounted for 30% of the projects evaluated. Only two built projects in the exhibition, Bargmann and Levy's, and Richard Hansen's, continue to collect scientific data to monitor progress.

Mapping Eco-revelatory Design Using Thayer's Continuum

As discussed in Chapter Two, Thayer created a set of four continua that he believed defined important traits of eco-revelatory design. He intended this set to be used for positioning

[160] Gary W. Cramer, The Poetry of Stormwater: Rain Gardens Balance Function and Aesthetics in the Chesapeake Bay Watershed (2006).

different works within the field. From this, he argued, one could determine strengths, weaknesses, and trends inside eco-revelatory design.

What follows is a brief description of each recommendation, a description of how well the selected projects met each recommendation, and an example of projects that succeeded in doing so.

Continuum 1: Abstract—Concrete

This ranges from very didactic, straightforward communication, such as signage, to communication that is more abstracted, metaphoric, symbolic, and based on the formal qualities of a design.

Of all the projects evaluated, all relied on formal characteristics to convey meaning. Most relied exclusively on non-verbal communication. Signage was rarely used, and only then as a supplemental reference. One exemplary use of abstract communication was a design for a former DOT dumping ground that would become the corporate headquarters for a company specializing in eco-friendly technology. The whole site is built around the theme of the sun. It incorporates a large interactive sundial with allees that come off of cardinal points, and uses water features run by solar energy which operate slower or faster depending on the amount of solar power available. The design emphasizes through clear changes in planting the different microclimates created by sun aspect. It also encourages hands-on interaction for site visitors, and shows best practices ranging from farming, to planting with natives, to water and energy conservation methods.[161]

[161] Paul Bennett, "A Place in the Sun: Solar Power Gets Real in Northern California," Landscape architecture 90.1 (2000).

Continuum 2: Regenerative—Passive

This looks at whether the design seeks to remedy ecological problems or simply reveal and expose them.

Although still heavily slanted in favor of regenerative projects, this evaluation found a slight increase in designs that were more concerned with revelation than remediation. Thirty percent of the projects were considered passive. Generally, these tended to be more avant-garde in nature. For example, artist Natalie Jeremijenko hung trees upside-down to expose the effects of geotropic and phototropic responses in an experiment that question which of these forces would be more powerful. The artist also sought to question the nature of urban plantings, and the often ill conceived (and doomed to fail) street tree plantings, by asking if hanging trees in the air was any less natural than putting trees in concrete sidewalks.[162]

Continuum 3: Human Ecosystems—Non-human Ecosystems

The subject matter may deal with areas that have very limited human influence (natural areas), or areas whose character is strongly influenced by human presence. Recognizing the domination of more urban landscapes as sites for eco-revelatory design, Thayer wondered if eco-revelatory design might be used in more "pristine," natural environments.

This evaluation finds that, overwhelmingly, eco-revelatory design remains in more human-dominated and urban landscapes. All twenty of the projects evaluated occurred in such areas. Eco-revelatory design also tends to be found in what many call "forgotten," or "corrupted" landscapes. Projects examined ranged from abandoned steel factories, to sewage treatment plants, eroded farmland, polluted marshes, and irrigation canals.

[162] "Tree Logic," Landscape Architecture 89.10 (1999).

Continuum 4: Visible—Invisible

Some ecological processes and phenomena are more visible than others. Designers may try to reveal highly visible aspects of a site, like projects that deal with an aspect of surface water, or they may try to reveal less visible aspects, like soil detoxification.

This is similar to the questions of scope and visibility, discussed in the performance evaluation. However, it is not just a question of whether or not a designer seeks to reveal some part of the hydrological process, it is a question of the visibility of the process being revealed. For example, one project examined sought to reveal traditional, sustainable agricultural practices. This would be considered as expanding the scope of eco-revelatory design. However, it would not be considered by Thayer to be an example of revealing an invisible process. Peter Latz's design for Landschafts Park Duisburg Nord, on the other hands, is an example of a project that would fall onto the invisible side of Thayer's continuum. Because of years of industrial activity, the soil toxicity levels of certain parts of the site are extremely high. Differences in toxicity and soil composition allow for a wide range of growing conditions. In some areas, the soil conditions are so unique that only certain species of plants may grow. The public can move among the slag piles and see how soil depth, and quality affect plant growth.[163]

Thayer's Conclusions:

Thayer considered his continua a useful tool that could gauge the strengths and weaknesses of eco-revelatory design. He found that the projects in the 1998 exhibition were "abstract and regenerative landscapes, and human-dominated landscapes with quite visible ecological processes and functions (principally water), predominate."[164] This evaluation shows that in the

[163] Brenda Brown, "Reconstructing the Ruhrgebiet: Ruins, a River, and Leftover Lands," Landscape architecture 91.4 (2001).
[164] Thayer, "Landscape as an Ecologically Revealing Language [Exhibition Review]." 129.

years following the exhibition not much has changed. The same categories overwhelmingly dominate the study.

Evaluation Conclusions:

This evaluation demonstrates that the works of the 1998 exhibition are still largely representative of eco-revelatory design today, with slight modifications. The field is still represented by a strong formal vocabulary that seeks to intrigue and engage the public. It is still deeply engaged with revealing aspects of water and other more visible processes, and has maintained its focus on regenerative design (in the exhibition 26% of the projects were passive, in this evaluation 30% were passive). Also, it continues to rely on an abstract formal vocabulary to convey meaning over concrete methods, and continues to work primarily in human dominated spaces. However, eco-revelatory design has become stronger as a source of research for design remediation strategies.

Although Thayer thought his continua could point out deficiencies in eco-revelatory design, and suggested the need for designs that would be concrete, passive, deal with non-human dominated landscapes, and focus on revealing less visible processes, the fact that eco-revelatory design has not shifted in this direction may not be entirely negative. Partly, it reiterates strengths of what defines eco-revelatory design.

The continued use of abstract rather than concrete means to reveal aspects of a landscape is integral to a definition of an eco-revelatory design that supports ecology and art. Conveying meaning through form, and not verbally or through signage, is what separates eco-revelatory design from interpretive nature walks and learning centers. It allows room for both the belief that landscape design can convey meaning, and encourages creativity and the imaginative exploration that critics thought necessary to satisfy the more human needs of ecological design.

Demonstrating that ecologically functioning landscapes can coexist with human expression is an integral part of promoting sustainability because it celebrates what people are capable of creating when they understand and work with natural processes, rather than just giving them a set of restrictions in the form of conservation guidelines. Also, a continued focus on human dominated landscapes is a positive attribute as well. Those landscapes offer the most opportunities for people to develop an understanding about the relationship between human processes and natural ones that can be taken and applied to everyday life. If eco-revelatory design seeks to create a sustainable ethic, then issues such as proximity and opportunities for experience are necessary for allowing education to occur. Likewise, many of the critics, especially France, would agree that a continued focus on regenerative design is a positive attribute.

However, by continuing to tie eco-revelatory design to revealing aspects of the hydrological processes, eco-revelatory design limits itself more than it ought to. While water related issues are becoming more important as population growth and development places new demands on this limited resource, eco-revelatory design should seek to become relevant with handling other issues as well. Just as the revelation of water issues gave designers chances to push their artistic creativity, the revelation of other phenomena may open up new ways of aesthetic expression.

Chapter 6

Final Conclusions:

In an interview with Udo Weilacher, Peter Walker remarks, “novels are written to express ideas and give people the possibility of discussing these ideas. Why shouldn’t a garden be designed for exactly the same purpose?”[165] Eco-revelatory design explores that possibility. It combines art and ecology to create an aesthetic experience tempered with knowledge of ecological functions. By appealing to both the emotional and cognitive parts of human consciousness, it hopes to instill in people knowledge of, and affection for landscapes that demonstrate a sustainable relationship between people and nature. It hopes to create a sustainable ethic.

Cronon argues that understanding and respecting “non-human nature” is important for creating a cultural sustainability. Recognizing what Cronon calls the “otherness” in wilderness reminds people of what they are not. It allows one to see and respect the different needs of non-human systems. However, he also argues that one should realize how they are connected to these systems, and how people and nature sustain each other. Wilderness after all, he claims, is a construct of the human mind. It is a place where people merely withhold their power to dominate. Cronon argues that knowing this, and seeing humans and nature not at opposite ends, but as part of the same system will allow people to come up with a responsible behavior for a relationship that sustains both.[166]

Eco-revelatory design does just that. It recognizes the special needs and character of both human and non-human systems. It also recognizes how these systems are related, and seeks to

[165] Weilacher, Between Landscape Architecture and Land Art. 220.
[166] Cronon, "The Trouble with Wilderness."

find the best working relationship between the two. In a bi-polar view, where man and nature are at opposing ends, those landscapes that clearly represent either one side of the relationship or the other are most often celebrated. Eco-revelatory design however, celebrates those landscapes in the middle where there is greater possibility for expressing both human and non-human systems. It encourages a second look at leftover spaces.

Eco-revelatory design will be most successful when it incorporates an aesthetic that is intriguing, one that draws people in, accommodates their imagination, and offers chances for further exploration and insight. It must also make formal decisions that are clearly expressive of what the designer wishes to convey while at the same time respecting the local aesthetic values of the area. It must be careful not to hide its functions or its infrastructure, and it must honestly convey site conditions, whether it be the extent of danger posed by hazardous conditions, or the extent of healing caused by remediation. Finally, it should seek to present the site as expressively and as artfully as it can without recreating images of ideal landscapes that are not relevant or truthful representations, and which create stereotypes that reinforce a view of a pristine wilderness.

To ensure that eco-revelatory design continues to be both representative of artistic and ecological goals, it should constantly test its assertions of ecological sustainability. It should also offer itself as an opportunity to become a testing ground for new design methods or technologies that propose to ecologically improve a site or a function. Furthermore, it should continue to test the extent to which design may reveal something, and the subject matter it chooses to reveal. This thesis has offered the opinions of authors who wish to see eco-revelatory design expand its focus in a number of directions. If eco-revelatory design accommodates these desires, it can only become a more relevant part of landscape architecture

In 2005, landscape architecture professors Heidi Hohmann and Joern Langhorst argued that landscape architecture is in a state of decline. This, they argued, was because, among other reasons, it had lost its connection to other fields, it had lost its connection to popular culture and concerns, it had lost it central and core defining values, and it was suffering through an identity crises between art and science.[167]

Eco-revelatory design offers promise for these concerns. First it provides space for artistic expression, and scientific research. Bargmann's project in Vintondale was a collaboration between, artists, ecologists, historians, engineers, and landscape architects.[168] Second, by connecting itself to environmental concerns, it connects itself with the popular concerns of a public worried about global warming, resource shortages, and overpopulation. Third, eco-revelatory design embodies a strong set of central values. It is pedagogical and expressive. It wishes to improve people's ecological understanding and their relationship to the environment. It seeks environmental health, justice, and a culture of sustainability. Finally, it is not fluctuating ambiguously between art and science. It confidently incorporates both to fulfill its needs.

Although it offers so much promise, it is interesting that, based upon this thesis's evaluation, eco-revelatory design comprises so little of the actual body of work in landscape architecture. However, it is interesting to note that several of the devices incorporated by early eco-revelatory designs have become more commonplace. Raingardens and a respect for leftover industrial lands are now widely accepted, even though they may not always be found in an eco-revelatory context. Whether or not these devices were popularized by eco-revelatory design however, is difficult to answer. What is important about eco-revelatory design is its transparency,

---

[167] Heidi Hohmann, Joern Langhorst, Gary R. Hilderbrand, Peter Jacobs, Elizabeth Meyer, Patrick A. Miller, James Palmer, Steven Velegrinis, Peter Walker and Jane Brown Gillette, "Landscape Architecture: A Terminal Case?," Landscape architecture 95.4 (2005).
[168] Bargmann and Brown, "Talking Trash with Julie Bargmann [Interview]."

its single-minded purpose to reveal and convey. Sadly, according to this study, that attribute has not been widely incorporated.

There may be many reasons for this. Critics, discussed in this thesis, pointed out the many shortcomings they saw in eco-revelatory design. These ranged from a lack of clarity in verbal communication and an overly artistic presentation, to unjustified claims and an unnecessarily narrow scope. Fortunately, this thesis's evaluation also showed improvement in most of these areas. Perhaps eco-revelatory design is still at an early development stage and as the genre expands and improves it will become a more viable approach for landscape architects. Perhaps also, as the revelation of water related issues—the predominate subject of most eco-revelatory designs—becomes more commonplace in the landscape, it also becomes easier to be overlooked and taken for granted. This may make eco-revelatory designs less immediately recognizable from ecological designs and common urban infrastructure by limiting its ability to contrast from its surroundings. It may also dilute the ability of eco-revelatory design to create the aesthetic experience necessary to fulfill its goals. If this is so, the pursuit of other subject matter and the continued exploration of artistic expression are even more important to eco-revelatory design's survival as an applicable part of landscape architecture.

France writes that in 1993 the trustees of the American Society of Landscape Architects "adopted a Declaration of Environment and Development, an attempt to encourage landscape architects to play a 'key role in shaping an ecologically healthy and regenerative world in the 21st Century,' rather [than] to practice 'little more than a minor decorative art.'"[169] Eco-revelatory design in theory, and in examples of built works as well, can fulfill these ambitions. It will be interesting to see, as the pressure to improve environmental standards, performance and

[169] France, "Green World, Gray Heart?: The Promise and the Reality of Landscape Architecture in Sustaining Nature." 3.

appearances grows, if eco-revelatory design will become more relevant to the profession of landscape architecture.

Bibliography

Webster's 2 new college dictionary. Boston: Boston : Houghton Mifflin Co., 1995.

Webster's Third New International Dictionary of the English Language, unabridged. Ed. Philip Babcock and the Merriam-Webster editorial staff. Gove. Springfield, Mass: Merriam-Webster, 1993.

Bargmann, Julie, and Bay Brown. "Talking Trash with Julie Bargmann [Interview]." Architecture 93.10 (2004): 25-26.

Bargmann, Julie, and Stacy Levy. "Testing the Waters." Landscape journal (1998): 38-41.

Bennett, Paul. "A Place in the Sun: Solar Power Gets Real in Northern California." Landscape architecture 90.1 (2000): 58-65.

---. "Slouching Towards Toronto: Public Art Meets Public Science in an Ecologically Revelatory Work by Canadian Artist Noel Harding." Landscape architecture 90.3 (2000): 72-77.

Blake, Edward L. "Hattiesburg Lake Terrace Convention Center." Landscape journal (1998): 18-20.

Bos, Dianne. "The Artful Garden: The International Garden Festival 2002 at Grand Mètis, Quèbec Blurs the Boundaries between Art and Landscape Design." Landscape architecture 92.12 (2002): 58-67.

Brown, Brenda. "Holding Moving Landscapes [Exhibition Review]." Landscape journal (1998): 52-68.

---. "Reconstructing the Ruhrgebiet: Ruins, a River, and Leftover Lands." Landscape architecture 91.4 (2001): 66-75.

Brown, Brenda, Terry Harkness, and Doug Johnston. "Eco-Revelatory Design: Nature Constructed/Nature Revealed: Guest Editor's Introduction." Landscape Journal (1998): xii-xvi.

"Contributors." Landscape Journal (1998): 141-44.

Cramer, Gary W. The Poetry of Stormwater: Rain Gardens Balance Function and Aesthetics in the Chesapeake Bay Watershed. 2006.

Cronon, William. "The Trouble with Wilderness." Uncommon Ground : Toward Reinventing Nature. Ed. William Cronon. New York: W.W. Norton & Co., 1995.

Deshpande, Amol Mukund. "Design Process to Integrate Natural and Human Systems." Virginia Polytechnic Institute and State University, 2004.

Eades, Joseph. "Urban Grass Waterways: Rethinking Stormwater Infrastructure in the Anacostia River Watershed." Landscape journal (1998): 26-27.

Eaton, Marcia Muelder. "Fact and Fiction in the Aesthetic Appreciation of Nature." Journal of aesthetics and art criticism 56.2 (1998): 149-56.

---. "Philosophical Aesthetics: A Way of Knowing and Its Limits." Journal of Aesthetic Education 28.3, Special Issue: Aesthetics for Young People (1994): 19-31.

Eisenstein, William. "Ecological Design, Urban Places and the Culture of Sustainability." Spur Newsletter Calendar (2001).

France, Robert. "Green World, Gray Heart?: The Promise and the Reality of Landscape Architecture in Sustaining Nature." Harvard design magazine.18 (2003): 30-36.

---. "Smoky Mirrors and Unreflected Vampires: From Eco-Revelation to Eco-Relevance in Landscape Design." Harvard design magazine (2000): 36-40.

Fudge, Robert S. "Imagination and the Science-Based Aesthetic Appreciation of Unscenic Nature." Journal of Aesthetics & Art Criticism 59.3 (2001): 275.
Galatowitsch, Susan M. "Ecological Design for Environmental Problem Solving [Exhibition Review]." Landscape journal (1998): 99-107.
Haag, Richard. "Eco-Revelatory Design: The Challenge of the Exhibit [Exhibition Review]." Landscape journal (1998): 72-79.
Hansen, Richard. "Watermarks at the Nature Center." Landscape journal (1998): 21-23.
Harkness, Terry. "Foothill Mountain Observatory: Reconsidering Golden Mountain." Landscape journal (1998): 42-45.
Herrington, Susan. "Framed Again: The Picturesque Aesthetics of Contemporary Landscapes." Landscape journal 25.1 (2006): 22-37.
Hill, Kristina. "Ring Parks as Inverted Dikes." Landscape Journal (1998): 35-37.
Ho. Architecture 89.11 (2000): 149.
Hohmann, Heidi, et al. "Landscape Architecture: A Terminal Case?" Landscape architecture 95.4 (2005): 26.
Howett, Catherine. "Ecological Values in Twentieth-Century Landscape Design: A History and Hermeneutics." Landscape journal (1998): 80-98.
Hurley, Stephanie, and Megan Wilson. "Great (Wet) Streets : Merging Street Design and Stormwater Management to Improve Neighborhood Streets." (2004).
Johnston, Douglas, and Wes Reetz. "Traces: Revealing Nature through Models of Landscape Dynamics." Landscape journal (1998): 4-5.
Klaver, Irene and Rachel May. "Draft Paper for New Directions Katrina Workshop New Orleans March 22-25, 2006
Vulnerability and Resilience: Nola." (2006).
Kovacic, David A. "Fire Dynamics in the Yellowstone Landscape from 1690 to 1990: An Animation." Landscape journal (1998): 6-7.
Levy, Daniel S. "Seeing Beauty in Ugly Places." Time Magazine 156.3 (2000): 65.
Lyle, John Tillman. Design for Human Ecosystems: Landscape, Land Use, and Natural Resources. New York: Van Nostrand Reinhold, 1985.
Mathur, Anuradha, and Dilip da Cunha. "Soil That New York Rejected and Re-Collects." Landscape journal (1998): 31-34.
Matthews, Patricia M. "Aesthetic Appreciation of Art and Nature." British Journal of Aesthetics 41.4 (2001): 395.
Mays, Vernon. "2002 Asla Awards." Landscape architecture 92.11 (2002): 66-77.
McAvin, Margaret J., and Karen Nelson. "Horizons Revealed and Constructed." Landscape journal (1998): 46-48.
McHarg, Ian L. Design with Nature. New York: Natural History Press, 1969.
Merchant, Carolyn. "Partnership with Nature [Exhibition Review]." Landscape journal (1998): 69-71.
Meyer, Elizabeth K. "Between Terra Firma and Terra Incognita." Richard Haag: Bloedel Reserve and Gas Works Park. Ed. William S. Saunders. New York: Princeton Architectural Press, with the Harvard University Graduate School of Design, 1998.
Mozingo, Louise with Ann Baker, Jonathon London, Nicholas Ancel, Iris Cheng, and Masato Dohi. "The Glenn W. Daniel King Estate Park Master Plan." Landscape journal (1998): 12-14.
Nassauer, Joan. "Urban Ecological Retrofit." Landscape journal (1998): 15-17.

Petts, Jeffrey. "Aesthetic Experience and the Revelation of Value." Journal of Aesthetics & Art Criticism 58.1 (2000): 61.
Phillips, Patricia. "Intelligible Images: The Dynamics of Disclosure [Exhibition Review]." Landscape journal (1998): 108-17.
Poole, Kathy. "Wet Lands: Civic Storm Water + Contingent Spaces, Carr's Hill, the University of Virginia." Land forum.6 (1999): 62-63.
Reiniger, Clair. ""Bioregional Planning and Ecosystem Protection"." Ecological Planning and Design. Ed. Frederick and William Thompson Steiner. New York: Wiley & Sons, 1997.
Stein, Achva Benzinberg, and Norman Millar. "Windows of Opportunity: Reprogramming Residual Urban Space." Landscape journal (1998): 8-11.
Thayer, Robert L. "Landscape as an Ecologically Revealing Language [Exhibition Review]." Landscape journal (1998): 118-29.
"Tree Logic." Landscape Architecture 89.10 (1999): 16.
Weilacher, Udo. Between Landscape Architecture and Land Art. Boston: Basel, 1999.
Wenk, William, and Billy Gregg. "Stormwater Gardens (Convey, Capture, and Reuse: Stormwater)." Landscape journal (1998): 24-25.

Appendix

Description of Eco-Revelatory Designs Selected for Study Evaluation:

1) "The Poetics of Stormwater," by William J. Thompson. 1/99, vol. 89, no. 1, pp 58-63.

   This design is a stormwater retention and treatment garden, comprised of a pool and rock filled swales at a water pollution control laboratory in Portland Oregon. It uses recreated marshlands that contrasts from the urban form of the center, but infuses the marsh with very clean architectural lines of walks and stone filled swales. Originally planned to be a strictly utilitarian detention pond, the landscape architects decided to rather construct something that would be an accessible and visual amenity to the surrounding neighborhood and would expand the grounds of an adjacent park, and showcase environmentally friendly stormwater techniques. The design incorporates continued testing to monitor pollution levels.

   Criteria: increases visibility, doesn't increase scope, involves continued research, provides for human enjoyment and participation.

   Abstract, Regenerative, Human Ecosystem, Visible

2) "Sustainable Camp Out," by Paul Bennett, 2/99, vol. 89, no. 2, pp. 40-45.

   This is an eco-sensitive resort for Hawaii's big island. The site was very degraded from sugar cane production and is reforested as part of the design's remediation goals. Buildings are arranged to decrease footprint and limit runoff. The design incorporates composting toilets, low impact buildings and boardwalks, and retains stormwater on site. Developer incorporated several public charrettes to get locals interested and involved in

process, believing that “truly sustainable designs must incorporate a cultural element.” From these charrettes the developer chose to use the local’s traditional land planning strategy that differentiated parcels of land according to watersheds (easy to determine by the ravines they cut into the volcanic mountain’s sides). Locals are given access to the site and are allowed to farm it for their own gain and in return the site is maintained. The design integrates activities of two groups of people with the good of the landscape in mind: it teaches locals about new eco-friendly technologies and allows eco-tourists to see sustainable, traditional farming practices.

Criteria: increases visibility, increases scope to show traditional and modern best management practices, no continued research, provides for human enjoyment and participation.

Abstract, Regenerative, Human Ecosystem, Visible

3) “Stream of Consciousness,” by Vernon Mays. 5/99, vol. 89, no 5, pp. 44-51.

This is a design for a private residence with a nearby stream. The stream was imperceptible during dry times, but in times of rain would cause flood damage. The designer worked to daylight the stream, and carved a runnel that would take it through the residence courtyard. Three different structures were created that would deal with three different flow sizes. When water reached a certain level it would enter a different part of the design making water and it’s changing state more visible. The design used a clear aesthetic vocabulary to differentiate the design from the woods.

Criteria: increases visibility, doesn’t increase scope, no continued research, provides for human enjoyment and participation.

Abstract, Regenerative, Human Ecosystem, Visible

4) “The Spring Peeper Meadow,” by Frank Edgarton Martin. 9/99, vol. 89, no. 9, pp. 66-74

This is a restoration project for a wetland meadow. Colored poles are arranged on a grid to demarcate the subtle grade changes of the site. These grade changes, though subtle, are important in determining water depth and plant colonies. The design makes the subtle ecological structure that influences a process clearer, and more legible. The design also incorporates a long boardwalk that zigzags throughout the site to provide access and up-close examination. The project maintains a focus on researching best management methods to increase biodiversity and cost-effectiveness of bog restoration.

Criteria: increase visibility, doesn’t increase scope, involves continued research, provides for human enjoyment and participation.

Abstract, Regenerative, Human Ecosystem, Visible

5) “Tree Logic.” 10/99, vol. 89, no. 10, pp 16.

Artist Natalie Jeremijenko hangs trees upside-down to expose effects of geotropic and phototropic responses of trees in an experiment for the public to see which is more powerful. The artist also asks if hanging trees in the air is any less natural than putting trees in concrete sidewalks.

Criteria: increases visibility, increases scope, involves continued research, provides for human enjoyment and participation.

Abstract, Passive, Human Ecosystem, Invisible

6) “A Place in the Sun,” by Paul Bennett. 1/2000, vol. 90, no. 1, pp 58-65, 76-77.

The site was formerly a DOT dumping ground for rubble. The whole site is built around the theme of the sun. It incorporates a large interactive sundial with allees that come off of cardinal points, and water features are run by solar energy. The design emphasizes

through clear changes in planting the different microclimates created by sun aspect. It encourages hands-on access for site visitors, and shows best practices ranging from farming, to planting with natives, to water and energy conservation methods, Part of the design is a large solar panel field that pumps solar energy back into California grid.

Criteria: increases visibility, increases scope, no continued research, provides for human enjoyment and participation.

Abstract, Regenerative, Human Ecosystem, Visible

7) "Slouching Towards Toronto," by Paul Bennett. 3/2000, vol. 90, no. 3, pp 72-77, 87.

A permanent art installation between a highway and polluted river. Large objects shaped somewhat like molars and built from recycled plastic act as containers for an elevated wetland. A solar panel, mounted on side of highest container pumps polluted water up from the river and into the raised wetlands. Plantings on molars are an abstraction of the regional ecosystem from an alpine forest marsh on the highest "molar" to a shortgrass prairie bog on the lowest one. Plants grow in an artificial soil made from recycled plastic granules. The design incorporates testing of plastic soil materials and their viability for use as a low weight soil. The design also tests for plants that can absorb heavy metals. The design contrasts a healthy ecosystem with the polluted Don River in the background and provides visitor access.

Criteria: increases visibility, doesn't increase scope, involves continued research, provides for enjoyments and participation

Abstract, Regenerative, Human Ecosystem, Visible

8) "A Distinct Destination," by Heather Hammatt. 7/2000, vol. 90, no. 7, pp 20. Design for the Harvard arboretum to educate visitors about native plants. Overall plan is an

abstraction of the veins in an insect's wing, or the branching patterns of a twig. This pattern divides the plan into different parterres. Each parterre has different site conditions and plants are arranged to the ones that best suit them. Plants are arranged in zones, as they would be naturally but in an abstracted manner with more focus on each one.

Criteria: increases visibility, expands scope to plant communities, no continued research, provides for human enjoyment and participation

Abstract, Passive, Human Ecosystem, Visible

9) "Restructuring the Ruhrgebiet: Ruins, a River, and Leftover Lands," by Brenda Brown. 4/2001, vol. 91, no. 4, pp 66-75, 92-99.

A look at Duisburg Nord Landschafts Park, in Duisburg, Germany. Pedestrian circulation traces circulation routes of former industry; industrial structures are opened to the public with new recreational uses. The design did not obliterate the industrial landscape to make the park, rather it left it so people could see alterations taking place. The landscape allows succession and exotics (transported to the site from coal deposits abroad) to exist on site. Certain, rare plants grow in unique soil conditions, and users can move among the slag piles and see how soil depth, and quality affect plant growth.

Criteria: increases visibility, increases scope to focus relationship between soil quality and plants, no continued research, provides for human enjoyment and participation.

Abstract, Passive, Human Ecosystem, Invisible

10) "Harvesting what you can't hold tight," by Brenda Brown. 7/2001, vol. 91, no. 7, pp 66-73, 95.

This article examines a Herbert Dreiseitl design in Potsdamer Platz, Germany. It looks at how sustainable water harvesting can give form to a design. Dreiseitl's design is very architectonic, as it forms part of an urban plaza. The design treats rainwater and retains it. It tries to make people aware of the qualities of water; especially the way sunlight reacts with waves to create patterns of light. It encourages public interaction. However, it is not entirely clear to the public that the water's source is rainwater, and that it's not being piped in from a municipal source.

Criteria: increases visibility, doesn't increase scope, no continued research, provides for human enjoyment and participation.

Abstract, Regenerative, Human Ecosystem, Visible

11) "Creating a 'There' There," by Rebecca Fish Ewan. 4/2002, vol. 92, no. 4, pp 84-91, 109.

Sunnyslope Canal Demonstration project is a linear park along a canal in Phoenix, Arizona. Rooms were created along the canal, with each one representing and revealing some aspect of nature or the site's history. One acts as an interactive sundial, the other lets water enter and evaporate throughout the day. Both show how time of day and year alter the effects of each space. Others deal with wind, or refer to cultural histories like the *kivas* of the southwestern pueblo culture. The design seeks to reconnect the community to the importance of canals.

Criteria: increases visibility, doesn't increase scope, no continued research, provides for human enjoyment and participation.

Abstract, Passive, Human Ecosystem, Visible

12) *Details* “Exposing Stormwater,” by Stanton Jones. 8/2002, vol. 92, no. 8, pp 30-32.

Students from the University of Oregon, worked to daylight a historical campus stream, slow it down, and treat it for pollutants entering from an adjacent parking lot. This had to be accomplished before it could enter a millrace. The students constructed a series of naturalistic swales that pass through three perfectly circular ponds. Cement weirs are used to slow water along its course. The plan provides paths, and covered seating so that people may lounge around during a rainstorm. It also exposes the amount of litter the stream carries, where before it would empty unseen into the millrace.

Criteria: increases visibility, doesn’t increase scope, no continued research, provides for human enjoyment and participation.

Abstract, Regenerative, Human Ecosystem, Visible

13) “2002 ASLA Awards,” by Vernon Mays. 11/2002, vol. 92, no. 11, pp 71.

This article features George Hargreaves’ “Markings,” a temporary design in San Jose, California. The design seeks to make people see the culturally invisible. Hargreaves painted 24 pylons supporting an overpass with reflective silver paint to catch the light. He then applied words in both English and in the Native American language, Karuk. Karuk words face the natural landscape of the river, and the English words face the street.

Criteria: increases visibility, increases scope to not just leftover spaces and forgotten infrastructure but also to a forgotten culture, no continued research, provides for human enjoyment and participation.

Abstract, Passive, Human Ecosystem, Invisible

14) "The Artful Garden," by Dianne Bos. 12/2002, vol. 92, no. 12, pp 60.

Article on artist Paul Cooper's submission to the International Garden Festival 2002 at Grand Métis Quebec. His entry 'Eden Laboratory' is described as a plant torture chamber that puts plants in extreme positions in order to express the effects of sunlight (phototropism), gravity (geotropism) and water (hydrotropism).

Criteria: increases visibility, increases scope, involves continued research, provides for human enjoyment and participation.

Abstract, Passive, Human Ecosystem, Invisible

15) "Learning from an Island," by Clair Enlow. 10/2003, vol. 93, no. 10, pp 84-93.

An article about a learning center for city children on Bainbridge Island, near Seattle. The center showcases best practices and provides environmental courses. In addition, the water treatment facility is located in the center of the campus, enclosed in a glass house where children can see the treatment of blackwater. Treated water leaves visibly clear to be used for toilets and for watering non-food plants.

Criteria: increases visibility, doesn't increase scope, no continued research, provides for human enjoyment and participation.

Abstract, Regenerative, Human Ecosystem, Visible

16) "Teaching the River," by Mary Padua. 3/2004, vol. 94, no. 3, pp 100-107.

The Living Water Garden coves 6 acres along the Fu-Nan River near the city of Chengdu in western China demonstrates alternative methods to water purification. The designers created constructed wetlands in a non-naturalistic yet artful manner that purify water, allow people to interact with each stage, and teach people about the process. It provides a welcoming green refuge in a city of nine million people.

Criteria: increases visibility, doesn't increase scope, involves continued research, provides for human enjoyment and participation.

Abstract, Regenerative, Human Ecosystem, Visible

17) "The Poetry of Stormwater," by Gary W. Cramer. 3/2006, vol. 96, no. 3, pp 50-60.

A raingarden near the Chesapeake Bay is incorporated to become part of a playground. Uses strong, artfully designed forms built by neighborhood volunteers, which encourage children to interact with the design. Children form a final link in the hydrology of the site by pumping the water in a cistern into a series of troughs that carries it away to tributary.

Criteria: increases visibility, doesn't increase scope, no continued research, provides for human enjoyment and participation.

Abstract, Regenerative, Human Ecosystem, Visible

18) "A Bright Future for Wastewater Treatment," by Clair Enlow. 3/2006, vol. 96, no. 3, pp 76-85

This is an article on the Brightwater sewage treatment plant, near Seattle. The plant is designed to become a regional amenity and destination. It showcases sustainable technology and constructed wetlands. It will reforest over sixty acres and improve fish habitat. The site will be accessible to public and special care will be taken not to hide facilities, or their function. In fact facilities will be lined up via gravity flow to help outsiders understand the sewage treatment process.

Criteria: increases visibility, doesn't increase scope, no continued research, provides for human enjoyment and participation.

Abstract, Regenerative, Human Ecosystem, Visible

19) "Art for Rain's Sake," by Stuart Echols and Eliza Pennypacker. 9/2006, vol. 96, no. 9, pp 24-32.

10th@Hoyt Courtyard, an urban apartment courtyard in Portland, Oregon incorporates sculptural, stepped runnels that direct water from the roof to a stone basin where it is then pumped into fountains and used throughout the garden. Visitors can follow the water conveyance to where it disappears into a cistern. Water is then held in the cistern for use in the garden fountains. During dry spells when no water is in the cistern, the fountains cease to operate. The design has a strong axis, and uses strong architectural forms to emphasize the function of the system.

Criteria: increases visibility, doesn't increase scope, no continued research, provides for human enjoyment and participation.

Abstract, Regenerative, Human Ecosystem, Visible

20) "Touching the Good Earth," by Mary G. Padua. 12/2006, vol. 96, no. 12, pp 100-107.

This is a design for a campus for Shenyang Architectural University, in China. The designers wanted to counter a trend in China where agriculture is becoming less visible as young Chinese aspire to live in cities and work in industry and commerce. The design incorporates large rice fields as a symbol and reminder of agriculture in China. However, it's not only a symbolic link to heritage, it is also a functioning field that produces food for the campus dining facility. The rice fields are organically maintained and provide habitat for frogs, fish and crabs (which are also incorporated into the dining plan). The fields are an abstraction of china's rural countryside and provide a sharp contrast to the surrounding urban landscape. Concrete and granite paths, slightly elevated above the fields, cut sharply through the landscape as a reminder of its aesthetic function for the

university. Festivals are held where students and faculty participate in the planting and harvesting of the rice fields.

Criteria: increases visibility, increases scope to incorporate farming and land-use practices, no continued research, provides for human enjoyment and participation.

Abstract, Regenerative, Human Ecosystem, Visible