

# Tidy or Tangled: How People Perceive Landscapes

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PLSC 480: Management of Urban Forest Edges  
The University of Maryland – College Park  
Spring 2016

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## **Introduction**

The ways we choose to modify and manage the landscapes around us have enormous local and global consequences. Single-family houses now dominate the suburban landscapes of Washington, D.C., including Columbia, MD. These planned housing developments typically have a clean, tidy appearance with mown grass and trimmed shrubs. Unfortunately, this ordered presentation does not provide the ecosystem services that accompany an ecologically healthy, but often more disorderly landscape: cleaner water, air, soil, and happier and healthier residents.

This paper investigates how people perceive a range of landscape types and how various intervention techniques might affect their acceptance or appreciation. Understanding the way people see the landscapes around them can help Columbia's managers, planners, designers, and residents pursue riparian restoration efforts in their neighborhoods.

Dozens of researchers, inspired by Joan Nassauer's 1995 essay, "Messy Ecosystems, Orderly Frames," have asked how culture and aesthetics contribute to our understanding of the ecosystem. This paper is organized along those research paths: aspects of evolution, neighborhood social pressures, the role of education, design and planning impacts, and ecological-aesthetic modeling.

## **Evolution**

Knowing how genes and evolution influence people's landscape preferences can inform restoration decision-making. Since the 1980s, researchers have surveyed people of all ages in the suburban United States and Nigerian rainforest areas (Balling and Falk 1982; 2010). When Americans were shown photographs of five different biome types—savanna, rainforest, desert, coniferous and deciduous forests—the youngest ages overwhelmingly preferred the savanna landscapes, while older groups showed no preference between savanna or forests (Balling and Falk 1982, 22). The rainforest and desert types scored lowest with American adults, while adult Nigerians least preferred the coniferous and deciduous forest types (22; Falk and Balling 2010, 485). The authors attribute this divergence to increasing familiarity with a landscape that leads to greater overall favorability (Balling and Falk 1982, 22). These results suggest genes may be the

basis for our aesthetic preference for savannas, however tastes can vary this with age and cultural experience (Falk and Balling 2010, 488).

## **Cultural Impacts on Landscape Preference**

### *Images, lawns, and social values*

Beyond genetics, culture can shape landscape preferences. One problem many suburban restoration projects face is the challenge of building quality ecological communities, which people often perceive as messy or untended (Nassauer 1995; Nassauer 1997). In her manifesto-like essay, “Messy Ecosystems, Orderly Frames,” Nassauer (1995) attributes our perception of a “quality” landscape as aligning with picturesque landscape painters and Western pictorial conventions, rather than with ecological markers of quality (162). Our culture also associates an ethic of hard work and pride with the maintenance of a well-manicured lawn (162). This tendency toward ordered landscapes becomes a driver of conformity and social acceptance. Although these yards are often considered beautiful, they usually have less ecological value than more biologically diverse landscapes. The maintained lawn communicates a set of cultural values and reinforces conformity to broader societal norms (163). The historical and social forces that shape our perception of the landscape must be recognized and used as tools to achieve more ecologically wholesome landscapes (Nassauer 1995, 167-69).

### *Landscape preference studies with images*

Nassauer also conducted studies to determine which type(s) of landscape people preferred. In one study, she used seven images of lawns that ranged in amount and variety of vegetation from fully mown to weedy and overgrown and found suburban residents preferred fully manicured lawns and yards with trees and manicured prairie grasses (Fig. 1). Another survey found that farmers preferred landscapes that appeared tended in some way to those that seemed untended (Nassauer 1995, 165). Overall, these landscape studies revealed a preference for ordered landscapes that demonstrate human intention and care. Messy ecosystems can be accepted if the overall framework shows clear intentions to shape the landscape in a particular direction, whether through wildlife feeders, bold patterns, trimmed shrubs, plants in rows, linear designs, fences, or foundation plantings (167-68). Specifically, Nassauer cites the USDA’s Conservation Reserve Program’s successful implementation of mowed strips and bold patterns of planted

perennials in response to comments of the area's weedy appearance (USDA 2016). In general, Nassauer calls for an expansion of our definition of a "normal" landscape to include one with greater biodiversity (169).

#### *Landscape preference studies on-site*

One question raised by critics of image-based approaches is how do we know if people respond to real and pictured landscapes in the same ways? Unlike Nassauer's earlier landscape preference studies, which used computerized images, a 2004 study addressed this issue by conducting on-site surveys (Özgüner, 155). The study compared "loosely designed" Endcliffe Park to a "formally designed" Botanical Garden. How people responded to Endcliffe Park is meaningful because the site has features similar to the riparian zones in Columbia (Fig. 2). When asked to compare the two sites, respondents preferred the one they were standing in, although a majority said in general they would prefer natural to formal landscapes (151).

The responses suggest many people consider a formal garden to be 'natural,' which means that 'natural' is often seen in opposition to urban and not as the opposite of untended. This shows that people can enjoy both natural and designed landscapes, and urban designers and planners can successfully make use of both approaches. The conclusions reinforce that there is a strong response to human intention even in these natural areas (154). A question that surrounds landscape preference studies centers around if and how people behave differently toward landscape images and landscapes in reality.

#### *Neighborhood pressures*

Where homes are less densely spaced than in Columbia, so-called exurbs, Nassauer et al. (2009) examined how neighborhood norms create implicit social pressures that can influence personal landscape decisions. Although their study looked at privately-owned yards rather than publically-owned riparian zones, understanding the power of neighborhood culture on aesthetic preference is important because wider adoption of ecological design is critical in growing suburban and exurban areas. When Michigan residents were shown images of five landscape options for their model home—conventional turf, 50 percent native, 75 percent native, mature tree canopy, and young tree canopy—they overwhelmingly supported choices that conformed directly with what

their neighbors preferred (Nassauer et al. 2009, 290). For example, in turf neighborhoods, conventional turf was strongly preferred, but in neighborhoods with 75 percent native plantings, the native yards became highly preferred, with turf lawns becoming least preferred (289).

When presented with a neighborhood mix, potential residents selected a variety of landscape types, suggesting that preference is strongly shaped by neighborhood norms, and when presented with diverse options, people feel more free to adopt ecological designs. This research suggests that incentives for transitioning to ecological yards at a neighborhood scale may be particularly promising since landscape behavior seems to defer to local preferences (290).

## **Education and Landscape Appreciation**

### *Can information help?*

Education is often considered central to fostering people's awareness and acceptance of healthy ecosystems and it is therefore important for managers and planners to acknowledge the potential results of outreach efforts. To test if information changed minds about landscapes, a group of researchers tested people's responses to perceived benefits of untended woodland and savanna images (Hill and Daniel 2008). There was no apparent difference in how people perceived *scenic beauty* when comparing the results of those who received information with those who did not (45).

Results indicated slightly greater acceptance rates for those who read the material, especially for the savanna landscape (45). This survey was conducted among undergraduate students rather than homeowners or neighborhood stakeholders, and researchers only allowed participants temporary exposure to information (37). These experimental issues require decision-makers to take caution when extrapolating conclusions for suburban restoration projects because prolonged, repeated exposure to messaging may have positive outcomes. The conclusions do suggest however, that recognizing the emotional underpinnings of people's connection to landscape should not be overlooked.

### *The "feel good factor"*

One Sheffield, UK study surveyed how self-reported well-being—the "feel good factor"—correlated with the measured on-site plant, bird, and butterfly biodiversity (Dallimer et al. 2012).

Conducted along riparian corridors, those surveyed reported feeling good on scales that bore no relationship to actual biodiversity, rather their feelings directly correlated with how they *perceived* biodiversity (53; emphasis original).

Despite people's inability to identify biodiversity in landscapes, they were still able to enjoy the positive psychological benefits associated with biodiversity in nature. The authors noted the disjunction between biodiversity perception and reality as a symptom of lack of biological and ecological knowledge: the more species a participant could identify by photo, the better they were at recognizing biodiversity in reality (53). Plant identification education can be a powerful tool for communities seeking to restore aspects of their landscapes by creating stronger relationships between people and plants.

### *Leopold's land ethic*

Aldo Leopold's land ethic provides one of the most compelling ways to comprehensively support ecological landscapes (1966). Leopold's rich monthly descriptions of the countless biological processes that governed the ecology of his farm help readers recognize the interconnectedness of the landscape and to see beauty in the mundane. Philosopher and environmental ethicist J. Baird Callicott argues for a direct translation of Leopold's ideas into an aesthetic model through intensive natural history and evolutionary biology education (2008).

These integrated outreach methods are another tool to assist managers in making restoration efforts appealing to the public. Important to this approach is cultivating a sophisticated understanding of each ecological component and the ways these pieces interact with each other and the whole (116). Shifting human perception toward an embrace of Leopold's land ethic would provide significant support for messier and more ecologically healthy landscapes.

## **Design and Planning**

### *Stakeholder engagement*

In addition to education efforts, design and planning can be crucial components in shaping how the public perceives suburban ecological restoration projects. Recent work by Nassauer et al. (2008) notes that the use of spatial terminology (e.g. patches and corridors) to communicate

ecological principles can prove particularly successful in the project planning phase (642). The authors also recommend an increased focus on designed landscapes because the planning process provides an opportunity for stakeholders to come together, communicate, and negotiate towards a solution (641). More urgently, the authors suggest each stakeholder-managed landscape project become a way to examine design aspects and measure outcomes in a case-study fashion.

Although incorporating professional design into suburban restoration schemes can be prohibitive, the process often solves or mitigates future problems. In balancing the needs of multiple stakeholders, design can help managers find a solution that makes everyone feel like they got some part of what they wanted.

### *Nested solutions*

The restoration of Chicago's wooded Montrose Point provides a specific instance of the design process allowing disparate stakeholders to reach mutual agreement (Gobster 2001; Gobster and Barro 2000; Fig. 4). When the area was abandoned by the military in the 1960s, birds, and birders, hikers, and beachgoers, were attracted in great numbers (Gobster 2001, 37). This space continued its ad hoc multi-use character until a 1999 restoration project began an embattled debate. Slowly, defendants of four distinct visions for the final park design emerged: historically-designed landscape, habitat, recreation, and pre-European settlement landscape (38-46). Despite these seemingly incompatible visions of the park's future, stakeholders were able to negotiate a solution that accommodated some of their desires.

Although such agreement is not always possible, creating a venue for civil discourse around a topic is an essential part of building successful outcomes. While each stakeholder is not necessarily equitably represented in the plan, all four visions were incorporated at some scale or location within the final park plan—a hierarchical idea termed 'nesting' (49; Fig. 5). The recreational volleyball players kept their beach space and the birders preserved a swath of their favored habitat. Both of these visions nested within larger historical and pre-European park plans. The Montrose Point project is a good example of design precipitating community involvement to create ecologically and culturally sustainable landscapes (49; Nassauer 1997).

## **Aesthetic-Ecological Modeling**

Other researchers have tried to understand landscape perception through modeling. One interdisciplinary investigation constructed an ecological-aesthetic model that integrates design, planning, and management (Gobster et al. 2007; see Figs. 6 and 7). First, the model is assembled around the perceptible realm, placing importance on the idea that people are most influenced at a human scale, by the landscapes they can see and physically change (959). Second, the authors state that emotion and aesthetic preference are the main drivers of change at the perceptible scale (961). The third factor relates how cultural factors impact the perception of ecological value (961). To help create a more robust ecological-aesthetic, the authors suggest design interventions and encouraging education opportunities (969).

Designing with this model can more effectively communicate ecological principles because it operates at a scale that has the greatest direct impact on how people perceive the landscape (960). Specifically, plans can incorporate the cues such as mown borders, strategic plantings, bold patterns, and colorful flowering plants that shape favorable aesthetic outcomes (970). The more projects implement these cues, the stronger the restoration feedback loop can become. To reinforce these intentional designs with the public, the authors favor an education strategy that communicates information about positive and negative ecological effects distributed through varied means: brochures, mailings, on-site signs, interviews, press coverage, tours, and engagement opportunities (970).

## **Conclusions**

The process of successfully restoring suburban riparian zones presents a host of challenges, foremost among them the perceptions of residents and community stakeholders. Understanding the factors that shape landscape perception and knowing some strategies for effectively managing those perceptions can be critical tools for managers and planners involved in restoration efforts. This essay has summarized research into evolution, culture, education, design, and aesthetic-ecological models of landscape perception in order to present an overview of viable approaches and precedents for restoration efforts in Columbia.

## Figures



Figure 3A. Conventional lawn.



Figure 3B. Conventional lawn with native trees and shrubs.



Figure 3C. Replace 50% of the front lawn with prairie garden.



Figure 3D. Replace 75% of the front lawn with prairie grass.



Fig. 1. Range of landscape types shown to survey participants. (Nassauer 1995, 166)



Fig. 2. Endcliffe Park in Sheffield, UK. Considered the natural environment for the researcher's study, the riparian landscape exhibits similarities to Columbia, MD.



***Conventional Front Yard Design***



***50% Native Garden Front Yard Design***



***75% Native Garden Front Yard Design***



***Mature Trees Front Yard Design***



***Young Trees Front Yard Design***

Fig. 3. Five landscape types used to determine influence of neighbor behavior on landscape preference. (Nassauer et al. 2009)

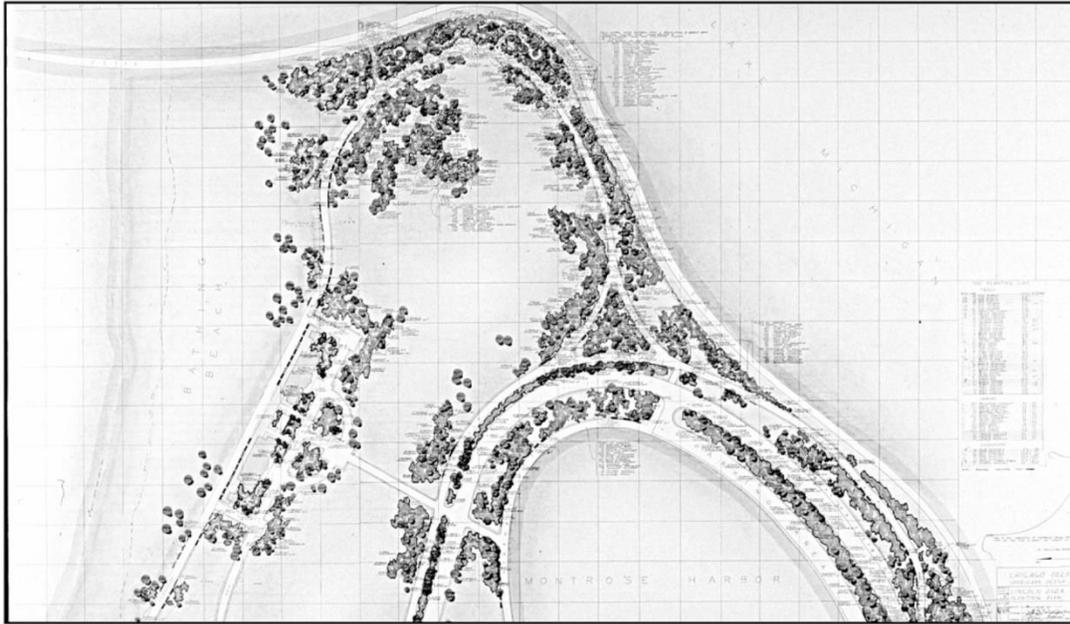


Fig. 4. Original 1938 landscape plan for Chicago's Montrose Point designed by Alfred Caldwell. (Gobster 2001, 38)

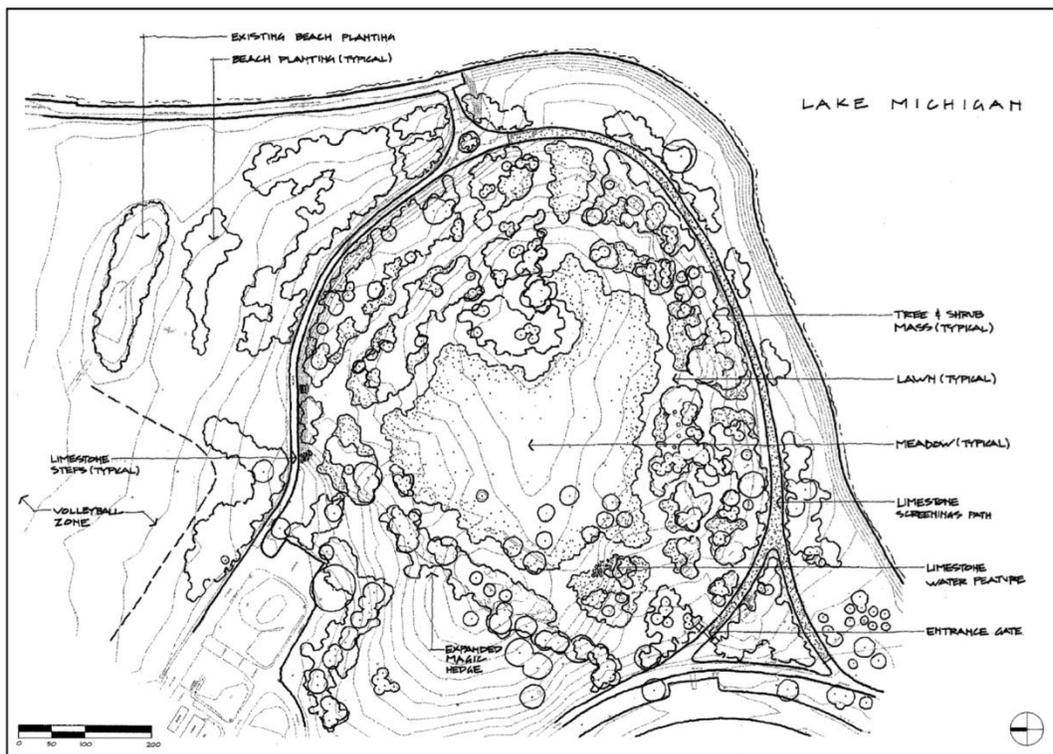


Fig. 5. Revised 1999 plan for Chicago's Montrose Point designed by Wolff Clements Associates showing four nested visions of nature. (Gobster 2001, 50)

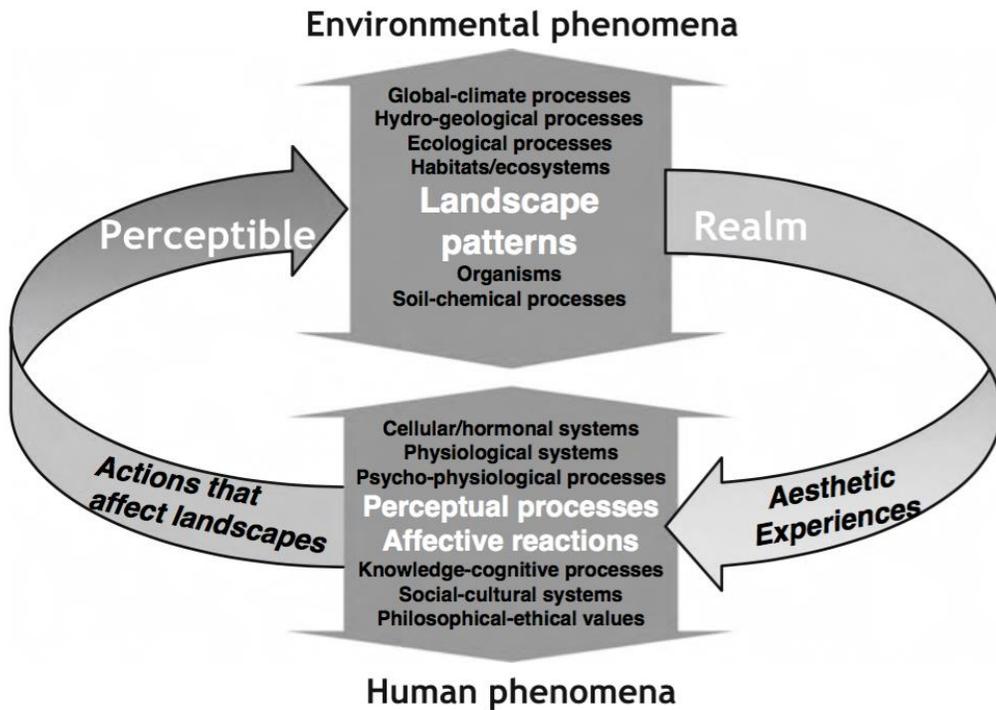


Fig. 6. Aesthetic-ecological model. (Gobster et al. 2007, 963)

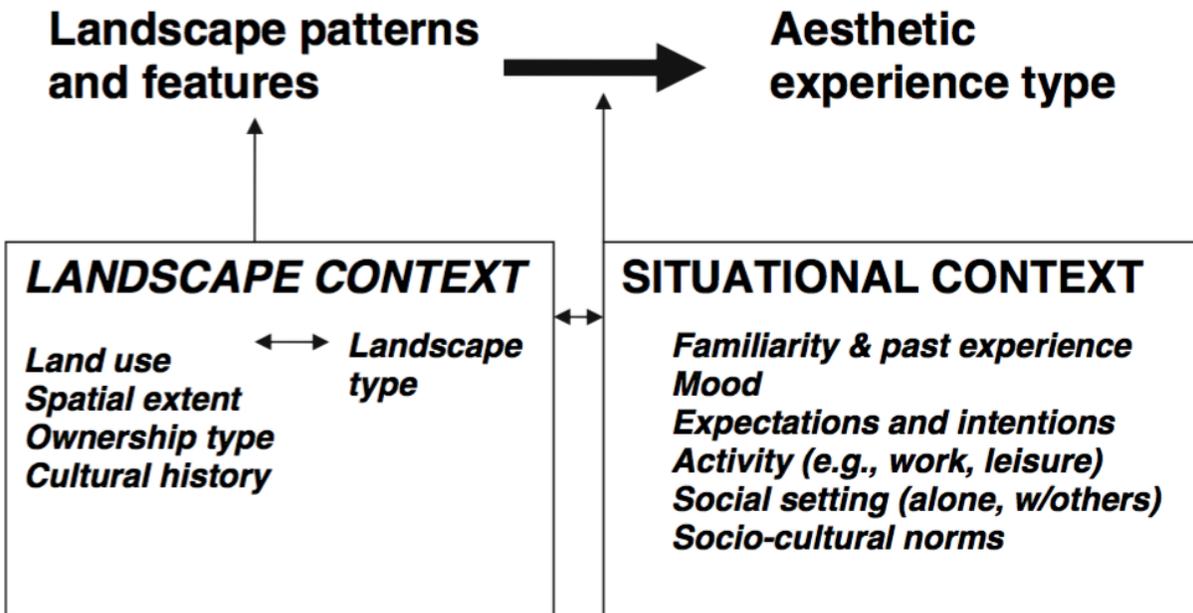


Fig. 7. Aesthetic-ecological model, detail. (Gobster et al. 2007, 965)

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