

The Suffocating Embrace of Landscape and the Picturesque Conditioning of Ecology

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ABSTRACT What are natural landscapes? Are they “out there,” separate from people, or are they creations of our own perception? An exploration of artistic visions of landscape on the one hand and the development of ecology as a self-conscious science on the other suggests that for nearly 150 years ecology has been conditioned by romantic, picturesque portrayals of landscape. Landscape (as *landscab*) originally implied people living within and shaping a capricious nature, but rapidly evolved to *landtskip*: natural scenery reflecting a balance of nature viewed from the outside. Despite repeated scientific demonstrations of the lack of ecological balance at any time now or in the past, ecologists (and most other people) persist in clinging to a romantic conception of landscape with nature in balance. An explicit analogy between Fernand Léger’s 1959 lithograph *La Ville—Le Viaduc* and an old-growth Douglas fir/Western red cedar forest suggests that Modernist or Postmodernist visions of landscape may be more realistic visual representations of nature. To reframe and reconfigure ecology and environmental stewardship to better reflect current understanding of how nature—including people—“works,” contemporary landscape artists must engage with ecologists, environmental scientists, landscape architects, and the broader public to redefine the nature of nature.

KEYWORDS Ecology, landscape, landscape art, Modernism, Postmodernism, old-growth forests, sublime

[T]he most lovely and perfect parts of nature may be brought together, and combined in a whole, that shall surpass in beauty and effect any picture painted from a single point of view.

Thomas Cole (letter to Robert Gilmor, 25 December 1826; fide Hood 1969, 42)

In the Grand Canyon, Arizona has a natural wonder which is in kind absolutely unparalleled throughout the rest of the world. I want to ask you to keep this great wonder of nature as it now is. . . . I hope you will not have a building of any kind, not a summer cottage, a hotel, or anything else, to mar the wonderful grandeur, the sublimity, the great loneliness and beauty of the canyon. Leave it as it is. You cannot improve on it. The ages have been at work on it, and man can only mar it.

Theodore Roosevelt (1903, 370)

That there is a balance of nature is one of the most deep-seated assumptions about the natural world, the world we know on planet Earth.

John Kricher (2009, 1)

What are “natural landscapes?” Landscape artists capture them on canvas, landscape architects plan, design, and build them, and landscape ecologists study and interpret them. Each of these groups tends to work independently, but there are strong intellectual linkages among them (for example, Cronon 1995; Nassauer 1995; Gobster et al. 2007). In general, these linkages have been seen as directional, moving from the “natural world” that is catalogued and quantified by scientists into our consciousness through human perception and design and artistic interpretation (McHarg 1969; Meyer 2000). For example, Kelsey (2008) suggested that ecology provides ways to think

about how physical processes produce landscapes, which artists and landscape architects subsequently reshape. Cosgrove (2008) went further, looking to human constructs, especially maps, to remove people (and landscapes) from the “suffocating embrace of ecology” and to provide them with a more concrete place in the world. The endpoint of this process is that the picturesque caricatures of nature that emerge in designed landscapes or landscape art are seen to represent nature itself (Cronon 1995; Nassauer 1995; Kelsch 2000), yet at the same time designed landscapes require constant maintenance to ensure their persistence (for example, Downing 1841; Meyer 2000; Nadenicek and Hastings 2000; Spirn 2000; Jordan and Lubick 2011). Recognition of these caricatures and the desire to reduce subsequent maintenance can lead to calls for built landscapes to better reflect nature, natural processes, or other (but rarely-defined) ecological qualities (McHarg 1969; Nassauer 1995; Cook 2000; Meyer 2000). But can we actually define nature or ecological quality independently of our interpretation of it?

Ecologists—scientists who study nature and natural processes—are equally subject to cultural norms and to being conditioned by long exposure to cultural and picturesque conventions. In this essay, I explore the reciprocity between romantic ideas and artistic visions of landscape and the development of ecology as a self-conscious science (Kingsland 2008) and advocate for the environment (Strong 2008).¹ My intent here is to hold Cosgrove’s (2008) “suffocating embrace of ecology” up to an ecological mirror and show how landscape art can be a lens through which we view the history and development of ecology from its beginnings as a scientific discipline in the mid-19th century (see Egerton 2012 for its ancestral antecedents), its transformation into environmentalism beginning in the 1920s, and its emerging role in 21st century planetary stewardship (Power and Chapin 2010). In short, I assert that ecology has for nearly 150 years been suffocated by a romantic notion of landscape and an artistic portrayal of nature in balance (Kricher 2009); as Cronon (1995) pointed out, we (ecologists) may in fact be studying the wrong nature. My focus here is on the intersection between landscape art (especially its portrayal of “natural landscapes” in North America) and ecological science. Ecologists, even landscape ecologists, rarely study architect-designed landscapes,

and most ecologists would consider them to be pale imitations of “nature.”

This essay consists of four parts.² First, I briefly trace the origin of “landscape” and its reification in the broad, public consciousness through 19th century landscape painting and dissemination of an affordable aesthetic for landscape architecture. Second, I illustrate how repeated scientific demonstrations of the lack of natural balance at any time now or in the past have been subsequently subsumed by new paradigms of balance that reflect a romantic conception of landscape. Third, I suggest that Modernist and Post-modernist visions of landscape present, respectively, a template or framework for, and more realistic visual representations of, nature, and indeed may provide a model for a contemporary sublime (compare with Volk 2008).³ An explicit analogy between Fernand Léger’s 1959 lithograph *La Ville—Le Viaduc* with an old-growth Douglas fir/Western red cedar forest illustrates this suggestion. In these second and third sections, I deliberately reverse the standard model of linkages from ecology to landscape art and architecture; instead I focus on how ecologists and ecological science have been conditioned by, and at the same time have resisted, broader cultural trends. Finally, I conclude with a call for contemporary landscape artists and landscape architects to fully engage with scientists (especially ecologists and environmental scientists) and the broader public to redefine the nature of nature (compare with Bernal 1937; Cronon 1995; Nassauer 1995; Buijs et al. 2011). Such broad engagement is commonplace among artists, architects, and the general public (Joselit 2013) but occurs much less frequently between scientists and non-scientists. In particular, the ongoing renaissance of landscape art and architecture can and must have a transformative effect on ecologists if we are to reframe and reconfigure ecology and environmental stewardship to better reflect current understanding of how nature—including people—“works.” Neither landscape art and landscape design nor ecological science should be ceded to romantic notions of nature⁴—nature out there, without people, and without the constant buffeting of chronic disturbances and chaotic dynamics that are ever present in the world.

LANDSCAPE ART IN CONTEMPORARY CONSCIOUSNESS

Landscape art is one of the most enduring art forms. Although some art historians have asserted that American landscape art reached its pinnacle with 19th century romanticism and ceased being an active concern of serious artists by the 1850s (for example, Cosgrove 1998), others have recognized the continuing influence of artists of the Hudson River School, such as Thomas Cole and Frederic Edwin Church, not only on Modernist and Postmodernist artistic visions of landscape but also on the aspirations of American politicians and the general populace (Markonish 2008; Schuyler 2012). Exhibitions of landscape paintings regularly draw large crowds.⁵ Reproductions of classical landscape paintings and new landscape paintings executed in realist modes enjoy brisk sales and recall the rock star-like qualities attributed to Church, Thomas Moran, and other Hudson River School painters (Hicks 2010).⁶

In their heyday, the Hudson River School painters reflected Teddy Roosevelt's epigraphic vision of the Grand Canyon: nature cannot be improved and is best left alone without people in it, except as observers and recorders. The continued impact of the Hudson River School cannot be underestimated (Schuyler 2012) and reflects not only its resonance with deep-seated assumptions about how we think nature works (Kricher 2009; Botkin 2012), but perhaps more importantly, the widespread dissemination in affordable formats of plans and designs for implementing Hudson River-type landscapes at home (for example, Downing 1841, 1842, 1861).⁷

The conscious emplacement of people outside of nature and landscape is commonly referred to as environmental (or ecological) consciousness (Jordan and Lubick 2011). The notion of landscape as *Badland*—landscape in decline around us, in peril we have caused, and pain we are inflicting (Whelan 2008)—recapitulates Denis Cosgrove's reference to (post-Hudson River School) landscape art as being enmeshed in “the suffocating embrace of ecology” (Figure 1). The distinct place of people outside of nature also is reflected in how landscape is (and was) defined and generally understood. Originally, *landscab* encompassed a view of people being within and shaping the landscape. The land in the German *landschaft*, the Danish *landschap*, and the Old English *landscape* meant both a place itself along with the people of the

place; the suffixes or combination forms *-skab*, *-schaft*, and *-ship* meant association or partnerships, and were themselves derived from *skabe* and *schaffen*—“to shape” (Spirn 2008). By the 17th century, Dutch painters were referring to landscape as *landtskip*, which represents natural scenery that people view from without (OED 2011). This view of landscape as *landtskip* was embodied by Hudson River School and persists to the present day.

There were, and continue to be, competing views of landscape, however. The unprecedented and rapid changes in the 19th and early 20th centuries attendant to the opening, exploration, and closing of the western frontier in North America, and worldwide industrialization and urbanization provided different visions of the nature of landscape. Many people, including policy- and decision-makers, viewed the land as a source from which “natural resources” could be extracted, as a place to cultivate crops or graze animals, or simply as a pretty backdrop for human activities, including a nascent industry in nature tourism (Brown 1995). Landscape artists responded to these visions: George Inness illustrated changes to the landscape associated with industrialization; Louis Prang used new the new technology of chromolithography to distribute widely industrial images (Mancini 2005); and John Frederick Kensett oriented his work toward scenic tourism (Bedell 2001). To the Hudson River School painters, however, the vision of a sublime nature provided scenery and lessons for people nostalgic for a supposed prelapsarian era, and simultaneously trying either to coexist in its current, rapidly changing form or restore it to its previous grandeur (for example, Mancini 2005; Jordan and Lubick 2011).

LANDSCAPE, ECOLOGY, AND THE BALANCE OF NATURE

By the late 19th century, the western boundaries of the United States were settled, the frontier was closed, national parks were being established as peaceful refuges in nature for urban dwellers, and ecology was emerging as a science (Kingsland 2008; Jordan and Lubick 2011). The idea of nature being located somewhere else—a refuge and somehow different from the chaos in which people lived—was encapsulated in ecological science as the “balance of nature.” The idea of nature in balance also entered ecological science through early 19th century theoretical models

of physical systems based on idealized assumptions (Botkin 2012, 31).

Ecology as a scientific discipline originated in the mid-1800s (Haeckel 1866) during the second generation of Hudson River School painters, contemporaneous with the establishment of the U.S. National Park System, the first in the world. Ironically, one of the main arguments for the protection (in 1872) of Yellowstone National Park was to prevent it from becoming another Niagara Falls, which was already heavily commercialized by the time it was portrayed as the ultimate sublime in the paintings of Cole and Church. Within 20 years of the identification of ecology as a distinct discipline, scientists studying ecological processes were already remarking that “[p]erhaps no phenomenon of life in such a situation is more remarkable than the steady balance of organic nature” (Forbes 1887, 86) and the underlying causes of this remarkable balance became a defining feature of ecological research. By the early 1900s, ecology had its own professional scientific societies, meetings, and professional journals; the British Ecological Society was founded in 1913, and the Ecological Society of America was founded in 1915 (Macintosh 1985; Kingsland 2008). The broader cultural context of the founders of the discipline could be found in *fin de siècle* America, where the “landscape” had already been reified in paintings by Bierstadt, Church, and Moran (Bedell 2001), in state and national parks, in England’s formal gardens and America’s country estates and “cottages” (Schuyler 2012), and in contemporary poetry that reflected Cole’s epigraphic vision of a landscape painting that surpasses the beauty of any real landscape (Kroeber 1975; Heringman 2004).

Early ecologists implicitly assimilated these picturesque ideals. Foundational research focused on the structure of vegetation and asked whether groups of different plant species formed “formations” or “superorganisms” in balance with regional climate and geology (Clements 1916), or whether these same assemblages of species were simply the results of random events: lucky seeds germinating in good places that went on to become adult plants winning the competition race for space over later arrivals (Gleason 1926). The idea of climatically-determined, balanced plant communities and their associated animals prevailed.

By the 1930s, while Modernism was flourishing in art and architecture (Wood 2003), ecologists,

recapitulating the biblical telling of the expulsion from Eden, were mourning the loss of the balance of nature at the hands of man (Smith 1932, 649–650):

A hundred years ago, the great plains [of Kansas] were still largely in their primeval state. A balance of biological life or organic groups had been set up through the ages and this balance probably then was but little disturbed. . . . Man, that great disturber of natural balances, came to this area, sometimes called the ‘Great American Desert,’ to establish homes and to wrest a living out of this virgin soil. . . . These profound changes have been accompanied by a recognizable series of biological phenomena which might be expected to follow, upsetting this ancient harmony among living things.

These ideas undergirded federal legislation to protect and restore wildlife (the 1937 Pittman-Robertson Wildlife Restoration Act, still the major piece of legislation financing wildlife management in the United States; Organ 2012), and permeate the theory and practice of modern restoration ecology (Jordan and Lubick 2011; Botkin 2012). Similar sentiments can be found in the post-World War II writings of Aldo Leopold, Rachel Carson, and Eugene Odum, among many others, and were commonplace in ecological textbooks by the 1950s (Odum 1969). These ideas were so broadly representative of the paradigms in which scientists worked that when Nobel Laureate Norman Borlaug published a lecture on the myth of the balance of nature, (Borlaug 1972), the editors of *BioScience*, the international journal in which the essay was published, felt it incumbent to preface his article with an excerpt from their editorial policy statement: “We do not propose to avoid controversy because we believe that differing viewpoints should be heard, but the subject must have biological relevance. We will, of course, publish expressions of opposing opinions.” Ultimately, the Clementsian concept of ecosystem as a balanced superorganism gave rise to Lovelock’s Gaia Hypothesis, in which “stable optimal conditions for the [entire] biosphere have prevailed for thousands of millions of years” (Lovelock and Margulis 1974, 93; see also Lovelock 1965).

The balance of nature describes a condition in which populations of organisms either are unchanging through time or are regulated within finite, generally narrow bounds or predictable cycles. Ecologists from



Figure 1

Paul Jacobsen, *The Final Record of the Last Moment of History*, 2008, oil on linen, 72 × 120 in (Collection of the artist; reproduced with permission of the artist).

the 1920s through the early 1970s continually argued from conflicting observations, experimental data, and mathematical models whether or not populations were regulated internally (population growth slows down as densities increase) or externally (unpredictable changes in weather or climate prevent populations from exceeding the carrying capacity of their environment). Counter-intuitively, realistic models of interacting organisms rarely yielded stable or balanced systems (May 1972), but even the creator of these models retreated from the brink of ecological chaos, asserting that contingent generalizations about the structure of nature are nonetheless possible (May 1986).

At the same time, the discovery of the ozone hole, the increasing pace of climatic change, and the concurrent disintegration of natural systems suggested either a world out of balance or—at its most extreme—a world that had never been in balance (Wu and Loucks 1995; Cook 2000; Botkin 2012). Postmodernist visions of landscapes expressed this perspective—examples include Robert Smithson’s (and others’) earthworks (Kastner and Wallis 1998), Andy Goldsworthy’s photographs and vanishing sculptures, and Paul Jacobsen’s *The Final Record of the Last Moment in History* (Figure 1)—but like ecology and ecologists, these and other works hearkened to a better time when nature was still in balance.⁸ In commenting on his own work, and in response to an interviewer’s question about how he balances beauty in the face of a horrible future, Jacobsen recalled a moment of clarity when he viewed

the 2007 Guggenheim Museum exhibition *Arcadia and Anarchy* (Markonish 2008, 58):

The work [in the exhibition] seemed to begin with a lot of social pieces about the workers and resistance but then changed to paintings of idyllic landscapes. It clarified for me that the painter who hopes to change things might as well retreat to the woods and paint mystical scenes of naked women.

As a result, he views *The Final Record of the Last Moment in History* (Figure 1) as the last spectacle, in a future with no place for this or any of his other paintings.⁹

Yet the balance of nature continued to lurk even in an unbalanced ecology. What was once the balance of nature became a “metastable dynamic equilibrium” (Wu and Loucks 1995, 460):

Nature is not in constant balance, and patchiness is ubiquitous. The metastability suggested by hierarchical patch dynamics differs theoretically and structurally from the static stability implied by both the balance of nature and the classical equilibrium paradigm. Ecological stability is scale-dependent. Metastability is dependent on the presence of and interaction among spatial, temporal and organizational scales. Metastability or persistence for many ecological systems is usually found at the meta-scale, in contrast to the transient dynamics that have been used to



Figure 2
Caspar David Friedrich, *The Monk by the Sea*, 1809, oil on canvas, 110 × 171.5 cm. (Nationalgalerie, Staatliche Museen zu Berlin. Photo credit © Bildarchiv Preussischer Kulturbesitz / Art Resource, NY).



Figure 3
Joseph Mallord William Turner, *Snow Storm—Steam-Boat off a Harbour's Mouth*, 1842, oil on canvas, 914 × 1219 mm painting, 1233 × 1535 × 145 mm frame. (Tate Gallery, London. Accession number N00530; Digital image ©Tate, London, 2009).

characterize local and large scale phenomena. Harmony is embedded in the patterns of fluctuation and ecological persistence is 'order within disorder.'

In other words, we were simply looking for balance at the wrong scales in time and space.¹⁰ And now, nearly two decades on, we again have come full circle. Despite occasional resurgences of non-equilibrium thought (for example, Cook 2000; Botkin 2012), the balance of nature continues to be a persistent metaphor guiding how scientists organize their research and how non-scientists view the world (for example,

Nicholls 2009). For example, a recent survey illustrates that undergraduate students—both science and non-science majors—and the broader educated populace believe that “the balance of nature” is a valid descriptor of real ecological systems (Zimmerman and Cuddington 2007). The widespread and rapid death of oaks on the Massachusetts island of Martha’s Vineyard led a resident to state that the death of the trees was “a sign we are out of balance. If a person is sick, they are open to diseases. It’s the same with the planet and the trees” (Struck 2010). Similar metaphors of equilibrium and balance guide research and practice in disciplines from molecular biology to geomorphology

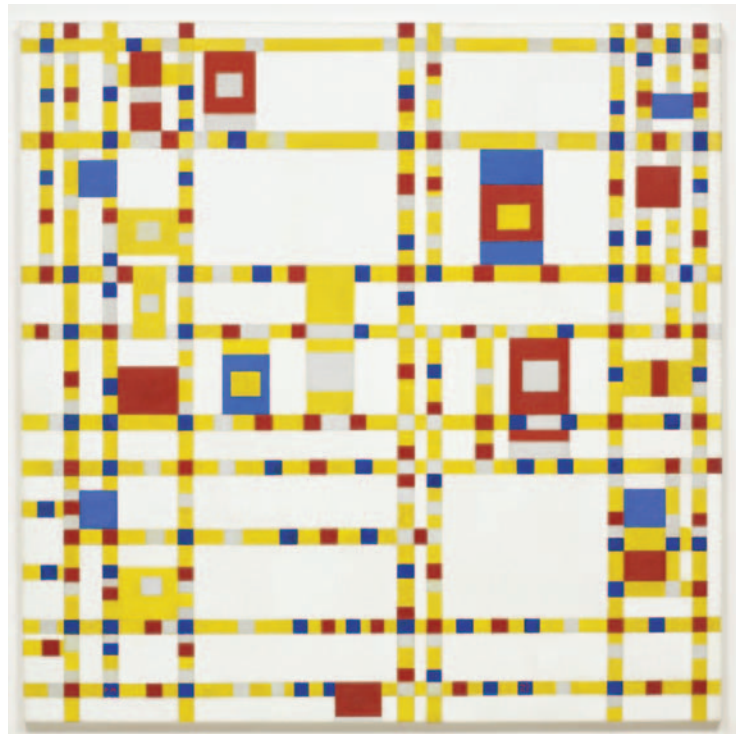


Figure 4
Piet Mondrian, *Broadway Boogie Woogie*, 1942-43, oil on canvas, 50 × 50 in. (Collection of the Metropolitan Museum of Art, New York. Digital image ©The Museum of Modern Art/Licensed by SCALA/Art Resource, NY; Painting ©2013 Mondrian/Holtzman Trust c/o HCR International).



Figure 5
Fernand Léger, *La Ville—Le Viaduc*, 1959, lithograph (Collection of the author).

to law (for example, Nivala 1988; Bracken and Wainwright 2006; Martínez-Frías 2008).¹¹

A MODERNIST VISION OF LANDSCAPE: LÉGER'S *LA VILLE—LE VIADUC*

Worldwide, the popular conception of landscape art reflects the Hudson River School and its descendants (Schuyler 2012). Nonetheless, many landscape artists, especially European ones, never shied away from depicting nature as cruel, capricious, or unpredictably unbalanced. Friedrich's *The Monk by the Sea* (Figure 2) shows viewers a boundless and empty scene that Andrews (1999) considered horrifying and lacking any

reassurance about the comfort or equanimity of nature. Turner's *Snow Storm* (Figure 3) is a frighteningly accurate portrayal of a person lost at sea in a squall. Critics panned it when it was exhibited, and Turner himself said that while he “wished to show what such a scene was like . . . no one had any business to like the picture” (quoted in Andrews 1999, 177).

As landscape artists working in plein air moved from realistic, yet idealized, portrayals of nature to a more nuanced understanding of underlying natural processes, the paintings themselves became more abstract, then more jarring. Simultaneously, the scenes portrayed shifted from rural (for example, the

impressionist landscapes of Cézanne and Monet) to urban (for example, the abstract cityscapes of Mondrian and Léger; see below), paralleling the modern shift in human settlement patterns from primarily rural to primarily urban that continues to the present day. But ecology, ecologists, and environmentalists remained locked in the suffocating embrace of romantic era landscape and continue to resist this shift. For example, the journal *Urban Ecology* lasted only a decade (1975–1986) and was renamed and refocused as *Landscape and Urban Planning* thereafter. The US Long Term Ecological Research program begun in 1980 focused on “natural” ecosystems and only established its two urban sites in 1998. Among scientists, this disconnection from the city and the “modern” is not limited to ecologists; the October 21, 2010 issue of the international scientific journal *Nature* used its cover, editorial page, and a special section to remind us that scientists continue to ignore the needs of cities despite the fact that more than half the world’s people live in cities and virtually all the world’s universities and researchers are in cities.

Two paintings clearly illustrate this shift in perspective: Piet Mondrian’s *Broadway Boogie Woogie* (Figure 4) and Fernand Léger’s *La Ville—Le Viaduc* (Figure 5). The jazz-influenced *Broadway Boogie Woogie* is rhythmic and chromatically balanced, yet profoundly disturbing. Mondrian himself referred to it as his own “destruction of natural appearance; and construction through continuous opposition of pure means—dynamic rhythm.”¹² In lectures and workshops I have given on this topic at Harvard, Oregon State, Florida State, and Boston University, participants—including undergraduates, graduate students, and faculty in studio art, ecology, forestry, computer science, and engineering—were asked to provide immediate emotional responses to these two paintings. Artists recognized both paintings but ecologists did not recognize either of them. Artists described *Broadway Boogie Woogie* as wild, playful, or jazzy, whereas ecologists described it as an abstract, patchwork, maze-like city map or a video game (references to Pac-Man are common), and definitely as “not nature” (or “not natural”).¹³

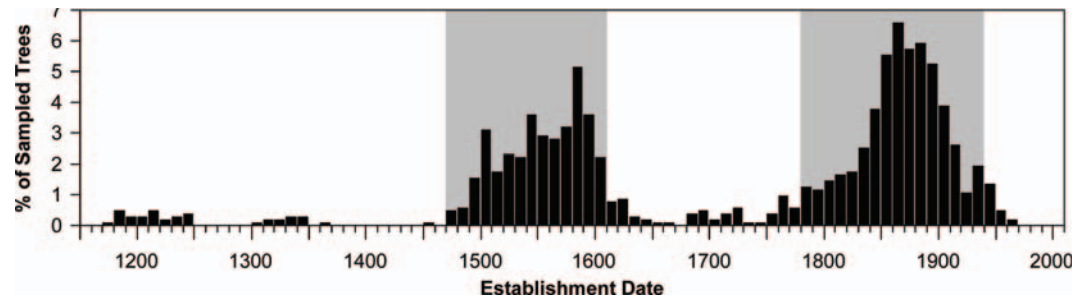
The cartoon-like, modernist *Le Viaduc* portrays essential elements of the cityscape: an aqueduct in the lower right; a construction crane in the upper middle; a chimney; and a building. Like Mondrian, Léger viewed

his painting *The City* (1919)—the precursor to the *La Ville* series of lithographs—as illustrating “dynamic divisionism” with jazz-like rhythms that span the painting (Lanchner 2010, 16). Art historians have interpreted Léger’s work as illustrating the “dissonant contrasts, pace, and fragmentary quality of life that he saw and relished in the increasingly industrialized new century” (Lanchner 2010, 9), and the artists with whom I have discussed *Le Viaduc* call it an illustration of a quirky, happy, playful city. In striking contrast, the smiling, red-eyed, cut-off clown prompts ecologists to whom I have shown *Le Viaduc* to view the entire cityscape as complex, detached, creepy, and even sinister; an urban metastasis that keeps on coming and growing (and thus overtaking nature). In striking contrast, artists’ acceptance of this reconfiguration and reconceptualization of landscape belies the notion that they are suffocating in an embrace of ecology, but ecologists’ continued resistance to a view of landscape as capricious, destructive, or out of balance reflects not nature itself, but the embrace of a landscape we want to see, and what sorts of questions we ask of it. In studying a “nature” whose definition is conditioned by a societal consensus of nature as harmonious other (Nadenicek and Hastings 2000), ecologists continue to struggle with these, and other, conflicting views of nature in professional practice (Jordan and Lubick 2011; Botkin 2012), and in language and metaphors used to describe nature and people’s place in it (Larson 2011).

THE POSTMODERN LANDSCAPE: OLD-GROWTH FORESTS

Like Léger’s *Le Viaduc*, old-growth forests illustrate ecologists’ contradictions. Ancient towering trees with silent, moss-covered limbs and thick soil that muffle a walker’s steps epitomize nature’s balance. Old-growth forests are routinely compared with cathedrals (for example, Cathedral Pines, an old-growth stand of white pine trees in Cornwall, Connecticut owned by The Nature Conservancy, and the Cathedral Grove of old-growth kauri trees in New Zealand’s Waipoua forest preserve), and individual trees are referred to as the Mother or Father of the Forest (the actual names given by the Park Service to two trees on the Redwood Loop trail in Big Basin Redwoods State Park, Santa Cruz, California; likewise the second-largest kauri tree in New Zealand is The Father of the Forest [Maori: *Te Matua Ngahere*]). Like cathedrals and parents, these

Figure 6
Irregular peaks of establishment of Douglas-fir seedlings in Pacific Northwest old-growth forests (From Tepley 2010; reproduced with permission of the author).



forests not only are perceived as timeless but also are protected in perpetuity: majestic groves of sequoias were among the first areas set aside in national parks (1890), state parks to protect the redwoods date to the 1920s, and Redwood National Park was established in 1968. Yet a detailed examination of old-growth Douglas Fir forests in the Central Cascade Range of Oregon suggests that the old-growth forest we cherish may be nothing more than a historical accident driven by episodes of intense forest fires (Tepley 2010). For example, more than 100 stands of old-growth forest established in a very short time-span in the 1500s, soon after a series of unusually large fires swept through the region (Figure 6). What caused these intense fires then and how often such intense periods of conflagration occur remain unclear, but there is no evidence yet for their predictability or any balance between the forest and its environment (Colombaroli and Gavin 2010). In fact, all of the data we have clearly indicate that old-growth forests are, at least in forest time, ephemeral. This ephemeral uniqueness, not a timeless balance, is a much better reason to cherish old-growth forests.

Even between fires, forests are in motion. As in disintegrating Earthworks, the earth creeps, slumps, and flows down hillsides beneath the trees of the old-growth forest at Lookout Creek in Oregon. These unstable conditions lead to episodic landslides; in between them, the movement of soil, as much as 15 millimeters (more than 1/2 an inch) per year, pulls fire-scarred trees apart at the seams (Figure 7). The current slip and creep of the soil has been going on for at least 300 years at this site, perhaps coincident with the establishment of this Douglas fir/Western red cedar old-growth forest (Swanson and Swanston 1977). Soils prone to such slippage originated in volcanoes, and eruptions themselves occur episodically and unpredictably.

This forest mirrors, but situates, *Le Viaduc* (Figure 8). Despite being on a steep south-facing slope,

the trees fall at every angle, sometimes landing on the ground, sometimes perched on each other. The crazy quilt of split trees, fallen trees, shattered logs, and depressions recalling once flowing but now blocked streams induces vertigo. The roots of splitting trees are like rock-climber's toes, grasping for an ephemeral perch, and an observer similarly grasps for a fixed frame of reference, but finds none. At any scale—from the daily rhythms of growing and dying plants to the eons of soil formation interspersed by volcanism, landslides, and germinating trees—this is nature in all its unbalanced glory!

RE-IMAGINING THE SUBLIME, RE-ENGAGING WITH THE WORLD

The suffocating embrace of romantically-infused notions of landscape has cut humans off from nature and from the world.¹⁴ When I ask “what is nature,” ecologists and artists alike answer “the world beyond my house,” “the parts of the world beyond human control,” or “the places I go to get away from people and refresh my mental energies.” Similarly, the second generation of Hudson River School painters rarely featured humans in their landscapes. The ideal photographs of landscape or nature almost never have people in the frame, and contemporary portrayals of landscapes, including earth artists and those represented in the 2008–2009 Badlands exhibition, either recapture Thomas Cole's epigraphic vision of a perfect, unattainable world or a once-balanced world now despoiled by humanity.

People are animals—not only metaphorically, but also literally. Like all animals, we are born, we grow, we kill to eat, we reproduce, and we die. Like many animals, we change our world (for example, Jones, Lawton, and Shachak 1994; Ellison et al. 2005). Over millions of years, we evolved from ape-like ancestors, which themselves evolved from other species. And like all species, we will eventually go extinct, disappearing



Figure 7
Split Tree, original digital image by Elizabeth Farnsworth, 8.3 × 32.6 in. (© Elizabeth Farnsworth. Collection of the author, and reproduced with permission of the artist).



Figure 8
Elizabeth Farnsworth, *Légerian Forest*, pen & ink on paper, 11.5 × 11.5 in. (Collection of the author, and reproduced with permission of the artist).

from this world but leaving traces behind—fossils, middens, art—that will eventually decay into their component atoms that will be reborn and reused in new objects and new species.

Evolution is a messy business. Like modern capitalism, evolution is a process of creative destruction. Darwin described a struggle for existence between organisms and the world around them, a struggle that includes not only the elements but other organisms. Modern evolutionary ecologists measure changes in the frequency and type of genes, but the cause and the result is ultimately the same: change is ceaseless and organisms are all constantly off-balance, just trying to survive.

But an off-balance world is not a free-for-all where we can do anything we want and damn the consequences. We humans think—and if thought is the firing of neurons, all animals think—but we are different from all other animals because we are aware and self-conscious not only of our actions but also of the consequences of our actions. With awareness comes responsibility—responsibility not only for ourselves

but for all our fellow-travelers on Earth. Not simply because we depend on plants for the oxygen that we breathe, the food that we eat, and even the gasoline that we use to drive our cars. Not simply because we depend on animals for the high-energy protein that graces our tables, companionship by the hearth, and for decomposing our carcasses when we die. But because the evolutionary play that causes some species to eat others, that causes other species to help others, and that causes most species to be indifferent to most others is the decisive expression of the sublime—the terrible uncertainty and ultimate incomprehensibility of the world around us and a world that includes us. We can poke, prod, and destroy what we do not understand, or we can reimagine it, revel in it, and celebrate it.

Landscape artists, landscape architects, and ecologists have joint responsibilities. Landscape artists and landscape architects must illustrate and re-imagine what they see: in painting, photography, video, sculpture, and in planned, designed, and engineered landscapes themselves. They must re-express the

sublime—not the terrifying disconnection between humans and “the environment” and the despair of the human condition—but the chaotic interplay of the Earth and all its creatures, large and small, animals and plants, fungi and parasites. And landscape artists must also re-connect with the broader society—like the Hudson River School “rock stars,” landscape artists must bring their postmodern visions to the world. Likewise, ecologists and environmentalists need to give up the illusion of nature “out there,” better off without people, and balanced in perpetuity. Ecologists can work with the contextual framework of postmodernism (for example, Feyerabend 1987) and view landscapes through the eyes of artists who envision the present, not mourn the past, and find new metaphors that capture and celebrate the caprice, uncertainty, chaos, and destruction of evolution.¹⁵ And in the end, we all need to shrug off the embrace of the romantic landscape and reengage with the world. It’s the only one we have.

NOTES

1. I use “ecology” here to mean ecology as a science—the study of the distribution and abundance of organisms and their relationships to, and interactions with, their environment.
2. Any one of these parts could be expanded into a full-length essay or book. This essay is meant more to stimulate debate, discussion, and engagement than to be comprehensive.
3. I use four key terms—Modernism, Postmodernism, sublime, and picturesque—as follows. Modernism emphasizes the independence of a work of art from anything outside of art (e.g., in contrast to classical landscape paintings); its form; and its aesthetic effects (Wood 2003, 22). Modernism also refers to artistic and broader cultural response to modernity—progress seen as increasing rates of technological innovation and urbanization in an anonymized, mass society (Poggi 2008). Postmodernism “quotes or otherwise comments on, ironizes, or takes a critical distance from ‘modernist’ abstraction” (Wood 2004, 229); explicitly incorporates the perspective of the artist (creator) along with his/her cultural background and perceptions (Meyer 2000, 229); emphasizes relativism and context; and de-emphasizes progress (for example, Feyerabend 1987; Cahoon 2003). In 19th century landscape gardening and early landscape architecture, three types of views were often considered: the beautiful, the picturesque, and the sublime. Picturesque initially was characterized by forms and arrangements that conveyed a sense of the raw power of the natural world and the caprices of wild nature; it was contrasted with beautiful, which was more graceful, soft, and luxuriant (Downing 1841, quoted in Schuyler 2012, 72). In contrast, the late 19th century writer Bruce Wallace characterized the rolling hills north of Newburgh in the Hudson Highlands as picturesque and the Catskill Mountains as beautiful (Wallace 1873, 57 and 67; quoted in Schuyler 2012, 20). Wallace’s use of picturesque and beautiful inverted Downing’s, but is more in line with that used by modernist landscape artists and architects (and in this essay) (compare with Meyer 2000, 211). The sublime conveys the “frisson of fear that comes from confronting something more powerful than oneself” (Beddell 2001, 105); sublimity creates sensations of wonder, awe, or terror (Harrison 2003, 109).
4. By way of example, Thomas Kinkade’s painting *Mountain Majesty (Beginning of a Perfect Day III)* hangs in the center of the cafeteria and conference center at the H. J. Andrews Long Term Ecological Research (LTER) site in Blue River, Oregon. Scientists at the Andrews LTER study how forest management, natural disturbances, and climatic change affect old-growth forests. Ironically, this painting, whose intent is to “find the truth of the Psalm confirmed by the radiance of sunrise, by a shimmering memory of a rainbow . . . especially by a towering snow-capped peak, like the one that stands as a silent sentinel in Mountain Majesty” (<http://www.thomaskinkade.com/magi/servlet/com.asucon.ebiz.catalog.web.tk.CatalogServlet?catalogAction=Product&productId=1497&menuNdx=0>), is juxtaposed with a timeline of research at the Andrews that highlights the dynamic environment and 50 years of constantly changing scientific paradigms. Researchers at the Andrews LTER recognized the irony, but only when the painting was actually pointed out to them. Previously, it had been only background eye-candy, representing the implicit yet contested assumptions of fundamental ecological research described in this essay. Botkin (2012, xii) encapsulates this irony with respect to management of rare species and natural resources: “[i]f you ask ecologists whether nature is constant, they will always say ‘No, of course not.’ But if you ask them to write down a policy for biological conservation or any other kind of environmental management, they will almost always write down a steady-state [i.e., ‘nature is stable’] solution.”
5. Two recent examples include a one-painting exhibition of Thomas Moran’s massive *Shoshone Falls on the Snake River* (1900), which took several years to plan and opened with great fanfare at the Portland Art Museum in October 2010, and the 2008–2009 *Badlands: New Horizons in Landscape* exhibition at the Massachusetts Museum of Contemporary Art.
6. By way of example, one need only consider the contemporary painter Thomas Kinkade (b. 1958), self-described as “America’s most collected living artist” (<http://www.thomaskinkade.com>), whose franchised galleries can be

found in every state in the U.S.A., as well as in Canada, Ireland, Malaysia, Mexico, Russia, and the United Kingdom.

7. Downing's designs were designed to be affordable, widely reproduced, and easily maintained (Schuyler 2012, 89). His *Cottage Residences* (1842) and *The Architecture of Country Houses* (1861) remain in print to this day. In contrast, designs inspired by McHarg's sophisticated environmental planning were expensive, rarely implemented, and required much maintenance. For example, Spirn (2000, 111) describes McHarg's plan for Pardisan—an environmental park planned for outside Tehran, Iran—as ecologically and socially perverse, requiring (in a desert environment) constant irrigation and air-conditioning.
8. Environmental artists of the 1960s and 1970s (including Smithson) challenged a static or binary conception of nature. Smithson and those who followed him abandoned to some extent the Modernist emphasis on color, form, and materials in favor of a creative engagement with a temporally varying environment, for example, Smithson's focus on "entropy" (Perry 2003, 188; Tsai 2005, 21). Without repeated viewing, however, it is difficult to see the explicit evolution of Earth art installations (Perry 2003, 188). Ironically, Smithson himself stated that he was not interested in works without substantial permanence: "So I'm interested in something substantial enough that's permeate—perhaps permeate is a better word than permanent—in other words, something that can be permeated with change and different conditions" (in Roth 2005, 92). Meyer (2000, 197–198) points out that many landscape architects found in works by Smithson and Robert Irwin a (postmodern) alternative to the (by inference, modernist) abstraction of ecological analysis, instead focusing on site-specific phenomena and processes that in turn would illuminate their larger-scale, longer-term causes. Ecologists work in similar ways, abstracting general patterns from specific instances. In both cases, the types of specific instances chosen, and the general patterns inferred, are conditioned not only by sites or exemplars but also by often unacknowledged assumptions (such as nature in balance).
9. Paul Jacobsen, Statement, <http://www.pauljacobsen.info/iWeb/Site/Statement.html>.
10. This type of statement is one of the most common responses to the critique that ecologists persist in viewing nature as being in balance. One reviewer of this essay wrote that "the dynamics and flow among various successional and developmental stages in response to windstorms and fires is well known to ecologists." Quite so, but our language betrays us—we call these events "disturbances."
11. The balance of nature metaphor is so deeply embedded that it is assumed, not discussed in Larson's (2011) monograph, *Metaphors for Environmental Sustainability*.
12. This quotation is from the description of the painting on the web site of the Metropolitan Museum of Art: http://www.moma.org/collection/browse_results.php?object_id=78682.
13. Although my surveys of artists and ecologists take place at the beginning of seminars I give on this topic and are informal, unstructured, and uncontrolled, the results are qualitatively indistinguishable from controlled studies subject to statistical analysis (for example, Hill and Daniel 2008, van Marwijk et al. 2012). Such results have been used constructively to build consensus among stakeholders with very different views of picturesque landscapes for ecological restoration projects, a.k.a. constructed landscapes (Buijs et al. 2011).
14. With unintended irony, Jordan and Lubick (2011) assert that successful ecocentric restoration is impossible without the disconnection between people and "nature." See Ellison (2013) for further discussion.
15. A promising step in this direction is the continued support by the U.S. National Science foundation for the LTER-Arts program (LTERArts), which hosts artists at LTER sites throughout North America to re-interpret landscapes and ecology and collaborate with ecologists (Chapin et al. 2010; website at: <http://www.ecologicalreflections.com/>).

REFERENCES

- Andrews, Malcolm. 1999. *Landscape and Western Art*. Oxford, U.K.: Oxford University Press.
- Bedell, Rebecca. 2001. *The Anatomy of Nature: Geology and American Landscape Painting, 1825–1875*. Princeton, NJ: Princeton University Press.
- Bernal, John D. Art and the scientist. In *Circle: International Survey of Constructive Art*, eds. John Leslie Martin, Ben Nicholson, and Naum Gabo, 119–129. London, UK: Faber & Faber.
- Borlaug, Norman. 1972. Mankind and civilization at another crossroad: in balance with nature—a biological myth. *BioScience* 22(1): 41–44.
- Botkin, Daniel B. 2012. *The Moon in the Nautilus Shell*. Oxford, UK: Oxford University Press.
- Bracken, Louise J., and John Wainwright. 2006. Geomorphological equilibrium: myth and metaphor? *Transactions of the Institute of British Geographers* 31: 167–178.
- Brown, Dona. 1995. *Inventing New England: Regional Tourism in the Nineteenth Century*. Washington, DC: Smithsonian Institution Press
- Buijs, Arjen E., Bas J. M. Arts, Birgit H. M. Elands, and Jaap Lengkeek. 2011. Beyond environmental frames: the social representation and cultural resonance of nature in conflicts over a Dutch woodland. *Geoforum* 42(3): 329–341.
- Cahoone, Lawrence E., ed. 2003. *From Modernism to Postmodernism: An Anthology Expanded*. Malden, MA: Blackwell Publishing Ltd.

- Chapin, Terry, David Foster, Tim Kratz, and Fred Swanson. 2010. LTER engages Arts and Humanities. *LTER Network News* 23(2): 2212. <http://news.lternet.edu/Article2212.html> [February 2, 2013].
- Clements, Frederic E. 1936. Nature and structure of the climax. *Journal of Ecology* 24(1): 252-284.
- Colombaroli, Daniele, and Daniel G. Gavin. 2010. Highly episodic fire and erosion regime over the past 2,000 y in the Siskiyou Mountains, Oregon. *Proceedings of the National Academy of Sciences, USA* 107: 18909-18914.
- Cook, Robert E. 2000. Do landscapes learn? Ecology's "new paradigm" and design in landscape architecture. In *Environmentalism in Landscape Architecture*, ed. Michel Conan, 115-132. Washington, DC: Dumbarton Oaks Research Library and Collection.
- Cosgrove, Dennis E. 1998. *Social Formation and Symbolic Landscape*. Madison: University of Wisconsin Press.
- Cosgrove, Dennis E. 2008. Seminar discussion. In *Landscape Theory*, ed. Rachael Ziady Delue and James Elkins, 128. New York: Routledge.
- Cronon, William. 1995. The trouble with wilderness: or, getting back to the wrong nature. In *Uncommon Ground: Rethinking the Human Place in Nature*, 69-90. New York: W. W. Norton.
- Downing, Andrew J. 1841. *A Treatise on the Theory and Practice of Landscape Gardening, Adapted to North America; With a View to the Improvement of Country Residences*. New York: Wiley and Putnam.
- . 1842. *Cottage Residences, or, a Series of Designs for Rural Cottages and Cottage Villas, and their Gardens and Grounds: Adapted to North America*. New York: Wiley and Putnam.
- . 1861. *The Architecture of Country Houses*. New York: Appleton.
- Egerton, Frank N. 2012. *Roots of Ecology: Antiquity to Haeckel*. Berkeley: University of California Press.
- Ellison, Aaron M. 2013. Stopping the hands of time. *Ecology* 94 [forthcoming].
- Ellison, Aaron M., Michael S. Bank, Barton D. Clinton, Elizabeth A. Colburn, Katherine Elliott, Chelcy R. Ford, David R. Foster, Brian D. Kloeppel, Jennifer D. Knoepp, Gary M. Lovett, Jacqueline Mohan, David A. Orwig, Nicholas L. Rodenhouse, William V. Sobczak, Kristina A. Stinson, Jeffrey K. Stone, Christopher M. Swan, Jill Thompson, Betsy Von Holle, and Jackson R. Webster. 2005. Loss of foundation species: consequences for the structure and dynamics of forested ecosystems. *Frontiers in Ecology and the Environment* 3(9): 479-486.
- Feyerabend, Paul. 1987. *Farewell to Reason*. London, UK: Verso.
- Forbes, Stephen A. 1887. The lake as a microcosm. *Bulletin of the Peoria Scientific Association* 1887: 77-87.
- Gleason, Henry A. 1926. The individualistic concept of the plant association. *Bulletin of the Torrey Botanical Club* 53(1): 3-26.
- Gobster, Paul H., Joan I. Nassauer, Terry C. Daniel, and Gary Fry. 2007. The shared landscape: what does aesthetics have to do with ecology? *Landscape Ecology* 22: 959-972.
- Haeckel, Ernst. 1866. *Generelle Morphologie der Organismen. Allgemeine Grundzüge der organischen Formen-Wissenschaft, mechanisch begründet durch die von Charles Darwin reformirte Descendenz-Theorie*. Berlin: G. Reimer.
- Harrison, Charles. 2003. Abstract art: reading Barnett Newman's Eve. In *Frameworks for Modern Art*, ed. Jason Gaiger, 105-151. London, UK: Yale University Press.
- Heringman, Noah. 2004. *Romantic Rocks, Aesthetic Geology*. Ithaca, NY: Cornell University Press.
- Hicks, Bob. 2010. Window on the West: One-painting exhibit, Thomas Moran's 'Shoshone Falls,' opens at Portland Art Museum. *The Oregonian*, October 22. http://www.oregonlive.com/art/index.ssf/2010/10/shoshone_falls_at_the_portland.html [February 2, 2013].
- Hill, Dawn, and Terry C. Daniel. 2011. Foundations for an ecological aesthetic: can information alter landscape preferences? *Society and Natural Resources* 21(1): 34-49.
- Hood, Graham. 1969. Thomas Cole's Lost Hagar. *American Art Journal* 1(2): 41-52.
- Jones, Clive G., John H. Lawton, and Moshe Shachak. 1994. Organisms as ecosystem engineers. *Oikos* 69: 373-386.
- Jordan, William R., III, and George M. Lubick. 2011. *Making Nature Whole: A History of Ecological Restoration*. Washington, DC: Island Press.
- Joselit, David. 2013. *After Art*. Princeton, NJ: Princeton University Press.
- Kastner, Jeffrey, and Brian Wallis. 1998. *Land and Environmental Art*. London, UK: Phaidon Press Limited.
- Kelsch, Paul. 2000. Constructions of American forest: four landscapes, four readings. In *Environmentalism in Landscape Architecture*, ed. Michel Conan, 163-186. Washington, DC: Dumbarton Oaks Research Library and Collection.
- Kelsey, Robin. 2008. Seminar discussion. In *Landscape Theory*, ed. Rachael Ziady Delue and James Elkins, 128. New York: Routledge.
- Kingsland, Sharon E. 2008. *The Evolution of American Ecology, 1890-2000*. Baltimore, MD: The Johns Hopkins University Press.
- Kricher, John. 2009. *The Balance of Nature: Ecology's Enduring Myth*. Princeton, NJ: Princeton University Press.
- Kroeber, Karl. 1975. *Romantic Landscape Vision: Constable and Wordsworth*. Madison, WI: University of Wisconsin Press.
- Lanchner, C. 2010. *Fernand Léger*. New York: The Museum of Modern Art, and Distributed Art Publishers, Inc.
- Larson, Brendon. 2011. *Metaphors for Environmental Sustainability: Redefining our Relationship with Nature*. New Haven, CT: Yale University Press.
- Lovelock, James. E. 1965. A physical basis for life detection experiments. *Nature* 207(4997): 568-570.

- Lovelock, James E., and Lynn Margulis. 1974. Homeostatic tendencies of the Earth's atmosphere. *Origins of Life* 5(1): 93-103.
- Macintosh, Robert P. 1985. *The Background of Ecology: Concept and Theory*. Cambridge, UK: Cambridge University Press.
- Mancini, JoAnne Marie. 2001. *Pre-Modernism: Art-World Change and American Culture from the Civil War to the Armory Show*. Princeton, NJ: Princeton University Press.
- Markonish, Denise. 2008. Manifest density to global warming: a pre-apocalyptic view of the landscape. In *Badlands: New Horizons in Landscape* (exhibition catalog), ed. Denise Markonish, 18. North Adams, MA: Massachusetts Museum of Contemporary Art, and Cambridge, MA: MIT Press.
- Martínez-Frías, María Luisa. 2008. The balance of nature: reflections on the physics and mathematics structure of the living world and the human genome. *American Journal of Medical Genetics, Part A*, 146A(14): 1781-1787.
- McHarg, Ian L. 1969. *Design with Nature*. Garden City, NY: Natural History Press.
- Meyer, Elizabeth K. 2000. The post-Earth Day conundrum: translating environmental values into landscape design. In *Environmentalism in Landscape Architecture*, ed. Michel Conan, 187-244. Washington, DC: Dumbarton Oaks Research Library and Collection.
- Nadenicek, Daniel Joseph and Catherine M. Hastings. 2000. Environmental rhetoric, environmental sophism: the words and work of landscape architecture. In *Environmentalism in Landscape Architecture*, ed. Michel Conan, 133-161. Washington, DC: Dumbarton Oaks Research Library and Collection.
- Nassauer, Joan I. 1995. Messy ecosystems, orderly frames. *Landscape Journal* 14(2): 161-170.
- Nicholls, Steve. 2009. *Paradise Found: Nature in America at the Time of Discovery*. Chicago, IL: University of Chicago Press.
- Nivala, John F. 1988. Our nature in balance: an essay on eighteenth-century landscape gardening and twentieth-century lawyering. *Journal of Legal Education* 38: 305-314.
- Odum, Eugene P. 1969. The strategy of ecosystem development. *Science* 164(3877): 262-270.
- OED. 2011. *Oxford English Dictionary: The definitive record of the English language*, 3rd ed. Oxford: Oxford University Press.
- Organ, John F. 2012. Celebrating 75 years: the evolution of a professional society. *The Wildlife Professional* 6(3): 24-31.
- Perry, Gill. 2003. The expanding field: Ana Mendieta's Silueta series. In *Frameworks for Modern Art*, ed. Jason Gaiger, 153-205. London, UK: Yale University Press.
- Poggi, Christine. 2008. *Inventing Futurism: The Art and Politics of Artificial Optimism*. Princeton, NJ: Princeton University Press.
- Power, Mary E., and F. Stuart Chapin, III. 2010. Planetary stewardship in a changing world: paths towards resilience and sustainability. *Bulletin of the Ecological Society of America* 91: 143-175.
- Roosevelt, Theodore. 1903. At Grand Canyon, Arizona, May 6, 1903. In *Presidential Addresses and State Papers, February 19, 1902 to May 13, 1903*. New York: The Review of Reviews Company.
- Roth, Moira. 2004. An interview with Robert Smithson (1973). In *Robert Smithson*, ed. Eugenie Tsai, 80-95. Los Angeles, CA: The Museum of Contemporary Art.
- Schuyler, David. 2012. *Sanctified Landscape: Writers, Artists, and the Hudson River Valley, 1820-1909*. Ithaca, NY: Cornell University Press.
- Smith, Roger C. 1932. Upsetting the balance of nature, with special reference to Kansas and the Great Plains. *Science* 75: 649-654.
- Spirn, Anne Whiston. 2008. "One with nature:" landscape, language, empathy, and imagination. In *Landscape Theory*, ed. Rachael Ziady Delue and James Elkins, 54. New York: Routledge.
- Strong, Donald R. 2008. Ecologists and environmentalism. *Frontiers in Ecology and the Environment* 6(7): 347.
- Struck, Doug. 2010. New England's stately trees give way as the region warms. *The Daily Climate*, 22 June. <http://wwwp.dailyclimate.org/tdc-newsroom/2010/06/trees> [February 3, 2013].
- Swanson, Frederick J., and Douglas N. Swanston. 1977. Complex mass-movement terrains in the western Cascade Range, Oregon. *Reviews in Engineering Geology* 3: 113-124.
- Tepley, Alan J. 2010. *Age Structure, Developmental Pathways, and Fire Regime Characterization of Douglas Fir/Western Hemlock Forests in the Central Western Cascades of Oregon*. Ph.D. Dissertation, Oregon State University, Corvallis, Oregon.
- Tsai, Eugenie. 2004. Robert Smithson: Plotting a line from Passaic, New Jersey to Amarillo, Texas. In *Robert Smithson*, ed. Eugenie Tsai, 10-31. Los Angeles, CA: The Museum of Contemporary Art.
- van Marwijk, Ramona B. M., Birgit H. M. Elands, Jarl K. Kampen, Sander Terlouw, David G. Pitt, and Paul Opdam. 2012. Public perceptions of the attractiveness of restored nature. *Restoration Ecology* 20(6): 773-780.
- van Valen, Leigh. 1973. A new evolutionary law. *Evolutionary Theory* 1(1): 1-30
- Volk, Gregory. 2008. Transparent eyeball. In *Badlands: New Horizons in Landscape* (exhibition catalog), ed. Denise Markonish, 177. North Adams, MA: Massachusetts Museum of Contemporary Art, and Cambridge, MA: MIT Press.
- Wallace, Bruce. 1873. *The Hudson River by Daylight*. New York: Gaylord Watson.
- Whelan, Tensie. 2008. People and the plane. In *Badlands: New Horizons in Landscape* (exhibition catalog), ed. Denise Markonish, 121. North Adams, MA: Massachusetts Museum of Contemporary Art, and Cambridge, MA: MIT Press.

- Wood, Paul. 2003. Art of the twentieth century. In *Frameworks for Modern Art*, ed. Jason Gaiger, 5–55. London, UK: Yale University Press.
- . 2004. The idea of an abstract art. In *Art of the Avant-Gardes*, eds. Steve Edwards and Paul Wood, 229–271. London, UK: Yale University Press.
- Wu, Jianguo, and Orié Loucks. 1995. From balance of nature to hierarchical patch dynamics: a paradigm shift in ecology. *Quarterly Review of Biology* 70: 439–466.
- Zimmerman, Corinne, and Kim Cuddington. 2007. Ambiguous, circular and polysemous: students' definitions of the "balance of nature" metaphor. *Public Understanding of Science* 16: 393–406.

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