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Rating the Regenerative Landscape

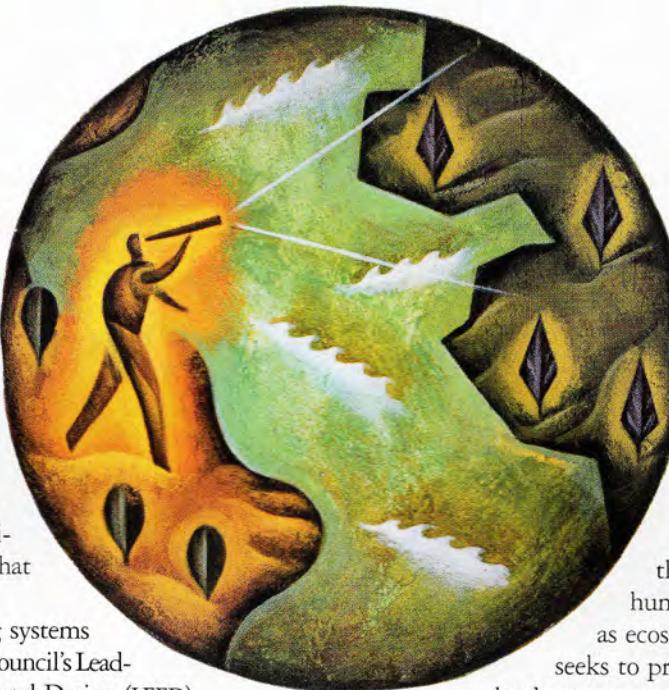
Theodore S. Eisenman, *University of Massachusetts - Amherst*

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ECOLOGY



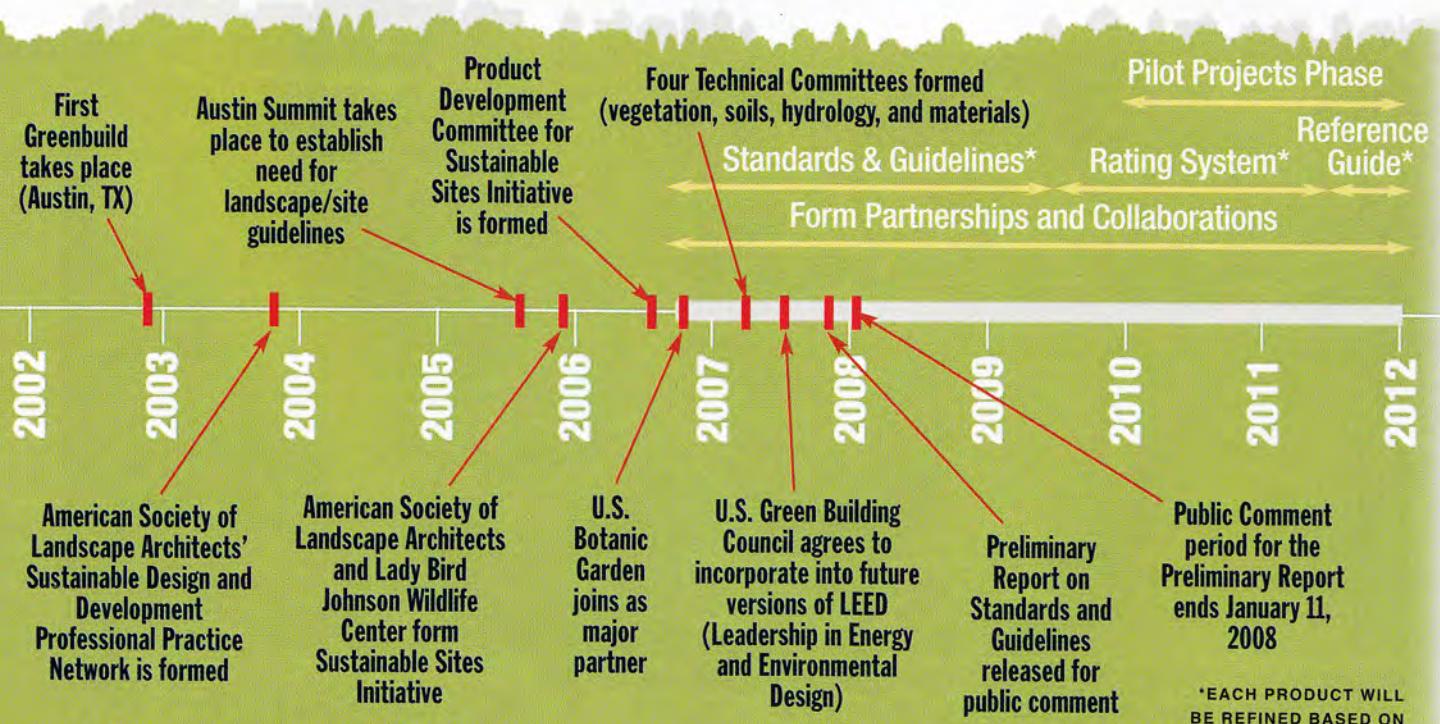
A NEW GREEN RATING system that will have direct implications for landscape architects is under way. Titled the Sustainable Sites Initiative, the program will be the first of its kind to specifically address the sustainable design and construction of sites. This is important news for landscape architects, and it may have impacts that go beyond the profession itself.

Current green building rating systems such as the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) program have concentrated primarily on mitigating the environmental impacts of buildings. This is important and understandable: Buildings account for one-sixth of the world's freshwater withdrawals, one-quarter of its wood harvest, and two-fifths of its material energy flows. Buildings also contribute roughly 40 percent of U.S. greenhouse gas emissions. By creating a national standard where none existed before, LEED has succeeded in making

RATING THE REGENERATIVE LANDSCAPE

A new “green” rating system aims to evaluate landscapes—with or without buildings.

By Theodore Eisenmann



green building understandable, and even sexy, to the general public. Yet while LEED does include criteria for site development, its general focus has been on technical solutions within the building envelope.



The Sustainable Sites rating system, on the other hand, will establish a rating system for sites with or without buildings. By establishing benchmarks based on the goods and services that sustain humans and other organisms—known as ecosystem services—Sustainable Sites seeks to protect and enhance the capacity of landscapes to actually regenerate natural resources.

This rating system has the potential to go beyond mere citing of environmental impacts.

"We can no longer aim for doing the least harm. We need to create ecological value. We need to be regenerative," says Jose Alminana, ASLA's representative on the Sustainable Sites Product Development Committee and a principal at Andropogon Associates. He hastens to add, "And we realize that's a fairly tall order."

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The Sustainable Sites Initiative started in 2005 through a collaborative partnership between ASLA, the Lady Bird Johnson Wildflower Center, the United States Botanic Garden, and a diverse group of other national organizations. With seed funding from federal, state, academic, and not-for-profit organizations, and substantial in-kind support from stakeholder organizations, these partners were able to commit project staff and create a product development committee and technical subcommittees consisting of national subject experts from academia, government, and private practice.

In November 2007, the group released a first draft report for public comment. This *Standards and Guidelines: Preliminary Report* is the beginning of an iterative process that will culminate with three products: standards and guidelines due in the summer of 2009, a rating system due in 2011, and a reference guide due in 2012. The preliminary report is structured around five themes: soils, hydrology, vegetation, materials, and human well-being. While the preliminary report has yet to establish actual benchmarks and a rating scheme, it does

provide a fairly comprehensive distillation and organization of sustainable site design principles and guidelines. Thus, it is a document that anyone engaging in site design—landscape architects, developers, and property owners—can use now for guidance.

The applicability of Sustainable Sites to projects with and without buildings is a distinguishing feature. In addition to public and private campuses, streetscapes and community plazas, and residential and commercial sites, this rating system will also provide guidance for the design of local, state, and national parks, recreation areas, conservation easements and dedicated open spaces, and transportation rights-of-way.

According to Heather Venhaus, ASLA, the Sustainable Sites program manager based at the Lady Bird Johnson Wildflower Center in Austin, Texas, this is one of the first green building rating systems to use the concept of ecosystem services as an underlying struc-

tural principle. Developed by environmental economists such as Robert Costanza, Gretchen Daily, and Rudolf de Groot, one prominent outcome of the ecosystem services methodology has been the valuation of nature in monetary terms. The feasibility, the accuracy, and even the morality of this quantification have generated some debate. But a secondary and important outcome

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of this approach has been the classification of services and functions that the biosphere provides.

These ecosystem services include products and processes that we often take for granted and are not included in conventional accounting: critical assets like crop pollination by bees, bats, and birds; flood protection and groundwater filtration and storage by soils, wetlands, and vegetation; and medicinal compounds provided by plants and soil microorganisms. The classification of ecosystem services such as these provides the conceptual framework for Sustainable Sites.

For example, one ecosystem service is maintaining or enhancing the hydrologic cycle. Sustainable Sites is structured to promote site design techniques that protect, restore, and enhance an ecosystem service such as this. In this case, vegetation and soil are critical tools in regulating hydrology. By intercepting and evapotranspiring precipitation, plants sustain the hydrologic cycle, and by absorbing precipitation into the ground, soils maintain the water table. To support these functions, Sustainable Sites identifies a range of design techniques such as maintaining existing tree canopy; installing multilayered planting schemes, green roofs, green walls, and rain gardens; protecting and enhancing soils; and using pervious or semipervious surfaces to promote infiltration. Other at-

tributes of sustainable sites have the potential to:

- regulate climate, both global and local
- provide habitat function
- detoxify and cleanse water
- decompose waste
- control erosion and retain sediment
- conserve energy and provide renewable energy
- mitigate potential hazardous effects and natural hazards
- provide human mental and physical health and recreation
- provide nonconsumptive value/ecotourism/aesthetics
- provide foods (and pollinators) that benefit humans and provide nonfood products (raw materials)

One of the significant challenges Sustainable Sites must still address is to translate guidelines into actual benchmarks and to develop a methodology for evaluating in quantifiable terms the immediate and long-term effects of a project. While stopping shy of this critical step, the current draft of the preliminary report provides an indication of how this will be approached.

A 14-page appendix, for example, provides detailed guidance for a predesign site assessment. According to Venhaus, this determination of existing condition will be critical. "A thorough

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site analysis will be a significant component of Sustainable Sites," says Venhaus. "Preconstruction site analysis may in fact become a prerequisite, and it would set the benchmark against which postdesign success will be evaluated."

The scope of this site assessment is broad and may include site context, structural components, biophysical elements, and the identification of existing ecosystem services and potential sustainable design strategies. According to Venhaus, this assessment will require more expertise than any one design professional can handle, and it will favor design firms and professions—such as landscape architecture—that are adept at working in integrated design teams and across disciplines.

"This puts landscape architects in the position of leaders," says Deb Guenther, ASLA representative on the Sustainable Sites product development committee and a principal at Mithun.

"We have traditionally been brought in as subconsultants on large projects. And though we may often see ourselves as environmental stewards, we haven't really assumed a leadership role in the broader dialogue on sustainability," says Guenther.

Indeed, this exposes two issues that landscape architects have been wrestling with for a while: an inferiority complex vis-à-vis other design professions and the halting efforts to fully integrate natural science as a core element of landscape architecture's competency. "By developing environmental benchmarks for landscape construction, Sustainable Sites will help clients and other design professionals to appreciate the expertise of landscape architects in a more tangible and measurable kind of way," says Guenther. "It also has the potential to inspire greater innovation within the profession."

Another potential outcome of the program's emphasis on pre- and postconstruction evaluation is the kind of development and land use patterns that Sustainable Sites will encourage. If the rating system is structured to score a project based on its total im-

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pact upon a site's existing condition, there will be more incentive to engage projects in disturbed sites—many of which are in urban settings—while discouraging the development of undeveloped forests, wetlands, and farms, sometimes described as “greenfields.” In this sense, Sustainable Sites could become an important tool for addressing the systemic land-use patterns and effects associated with urban sprawl.

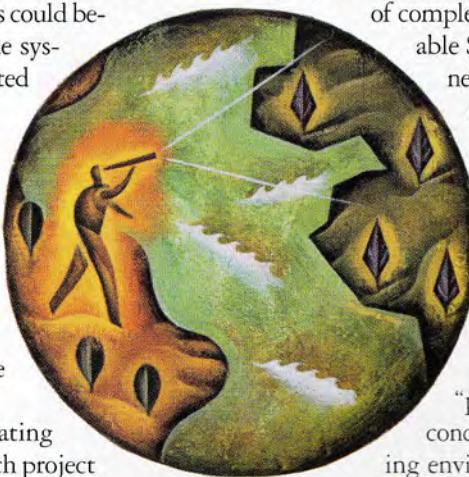
One issue that the preliminary report does not currently address is how Sustainable Sites will reconcile the local and regional context of a project site. This refers to the geographically distinct assemblage of natural communities and species—sometimes called “ecoregions” or “bioregions”—that distinguish one place from another.

“We would be doing an injustice by creating a one-size-fits-all for every site, because each project site is distinct,” says Venhaus. “To truly protect the ecosystem functions of a site, we will need to develop a method for identifying the ecosystem goods and services that are most important for that place, that region.” Translating these into quantifiable benchmarks and a rating system is not going to be easy, however. For example, how will the system determine the value of ecosystem services such as “genetic resources,” “food produc-

tion,” and “biological control”? Furthermore, what kind of rating system will provide for a fair, transparent, and understandable evaluation of pre- and postconstruction condition, based on the geographically distinct context of each site? These are the types of complex issues that the 40-plus-member Sustainable Sites project team will be tackling over the next several months before releasing the second draft of the standards and guidelines toward the end of 2008.

As the development of benchmarks and the structure of a rating system evolve, an important precedent to consider is LEED. While most people recognize LEED’s success in establishing green building as an important and credible construction practice, some have criticized it for promoting a “point-mongering” mind-set that is more concerned with accumulating credits than creating environmental value. It has also been criticized for being costly and time-consuming due to complex reporting requirements. The Sustainable Sites project team will need to address these issues in the forthcoming development of benchmarks and a rating system.

An additional concern for Sustainable Sites is how design and construction professionals are supposed to navigate the increasing number of rating systems. Sustainable Sites is actually one of two



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new green building rating programs currently in progress that will have direct implications for landscape architects. The other is LEED for Neighborhood Development (LEED-ND), which is in a pilot program phase and slated to launch in 2009. With the forthcoming release of LEED-ND, the U.S. Green Building Council (USGBC) will have nine discrete, but related, rating systems.

"We recognize the need to integrate these rating systems in order to make them more user-friendly and applicable to a broader market," says Deon Glaser, ASLA, USGBC representative for Sustainable Sites. To address this, the USGBC is working on an integrated bookshelf system that will make LEED more adaptive and flexible, allowing for an expansion of credits to cover additional building uses and types.

According to Glaser, who is the USGBC's first landscape architect on staff, standards derived from Sustainable Sites are anticipated to be included in future iterations of this new bookshelf system, which is ex-

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pected to be released for member ballot in late 2008 after a public comment period.

As noted, LEED-ND and Sustainable Sites are similar in that they both significantly extend the focus of sustainable construction beyond the single building envelope. Yet the two systems are quite different. A distinguishing characteristic of LEED-ND is a focus on location and community pattern and design—in other words, where people live and how they get around. It addresses these concerns by creating benchmarks for things like prox-

imity to transit hubs, mixed-use configurations, and pedestrian-friendly streets.

Despite the differences between LEED-ND and Sustainable Sites, their simultaneous development is good news for landscape architects—both rating systems direct the focus of green building standards into sites and landscapes, resulting

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in more green building criteria the profession is uniquely qualified to fulfill. And with the anticipated incorporation of Sustainable Sites standards into LEED's forthcoming bookshelf system, landscape-based criteria will be more thoroughly integrated into the construction and design industry's green building palette, further elevating the role of landscape architects.

More important, the formal integration of ecosystem services into a mainstream green building rating system represents an important evolution in how we approach land use, architecture, and development. By classifying and harnessing the regenerative capacity of landscapes, Sustainable Sites has the potential to protect and enhance the very processes that sustain life.

The operative term, however, is potential. Sustainable Sites is still in an early stage, and it has yet to tackle complex issues like establishing quantifiable benchmarks and a rating system. Yet the initiative is filling a significant void in the green building toolbox, and its thorough development could not come soon enough.

Theodore Eisenman is the New York director of the Highlands Coalition and a regular contributor to Landscape Architecture on ecological design topics.