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## **Ecological Landscaping: From Scientific Principles to Public Practices and Policies**

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## Ecological Landscaping: From Scientific Principles to Public Practices and Policies

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# Cities and the Environment

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## ECOLOGICAL LANDSCAPING: FROM SCIENTIFIC PRINCIPLES TO PUBLIC PRACTICES AND POLICIES

Loren Byrne, Issue Editor

In the United States, over 80% of the total population—more than 250 million people—live in the urban, suburban and exurban landscapes that cover over 25% of the country's terrestrial surface; these numbers will likely increase well into the future (Brown et al. 2005; UN 2007). In urbanized landscapes, 79% of American households help manage over 128,000 km<sup>2</sup> of lawns and gardens—more area than covered by any single food crop—and thus contribute to a \$147.8 billion landscaping industry (NGA 2004; Milesi et al. 2005; Hall et al. 2006). The magnitude of the urban landscaping endeavor and its associated green spaces have emerged from our collective pursuit of the American dream in which homeowners maintain idealized lawns and gardens around their homes to symbolize, in part, successful realization of this iconic vision (Figure 1; Jenkins 1994). Arguably then, the majority of Americans interact more today with lawns and gardens (conceptually, physically, and emotionally) than any other outdoor environments.



**Figure 1.** The idealized American urban landscape consists of lawns and garden patches around a single-family household. Maintaining this “dreamscape” requires many human management inputs including lawn mowing.

Together, these data and points suggest the importance of urbanized landscapes in general, and lawns and gardens specifically, to contemporary American society and culture. In turn, these subjects have become the focus for a small, but growing body of scholarly research that investigates, directly or indirectly, the question: What are the environmental and societal causes and consequences of pursuing the “American Dream?” Because ecologists, sociologists, and other scholars have only recently begun investigating this question in earnest, our understanding about the social and ecological dynamics of lawns, gardens, and larger urbanized landscapes is currently limited. This knowledge gap is a significant impediment to the creation of sustainable, healthy, and prosperous urbanized societies and ecosystems.

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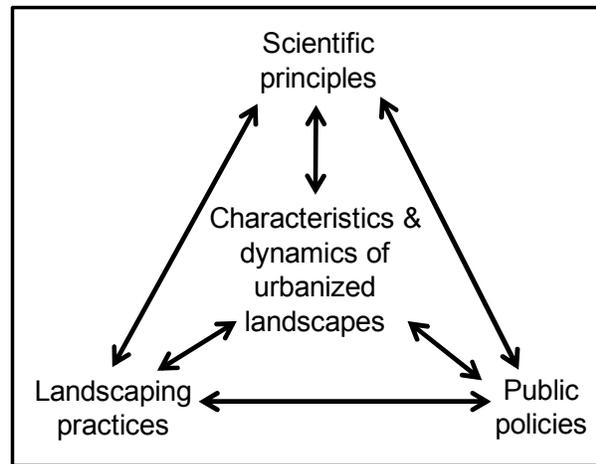
Byrne, L. 2008. Issue introduction – Ecological landscaping: from scientific principles to public practices and policies. Cities and the Environment 1(2):article 2, 3 pp. <http://escholarship.bc.edu/cate/vol1/iss2/2>.

Byrne: Issue Introduction

To increase our understanding of lawn and garden socio-ecology as well as effect positive changes in urban landscaping practices, new research and education efforts are needed in which scholars and practitioners collaboratively examine these topics from many complementary perspectives. Across the country, this need is starting to be met by many independent initiatives established over the past two decades (for examples see the article by Byrne and Grewal in this issue). However, to date, few broad-scale efforts have been made (especially among scientists) to generate integrated, interdisciplinary discussions and research about a holistic, interdisciplinary approach to the study and practice of sustainable urban landscape design and management.

To help spark new insights and research agendas about sustainable—or ecological—urban landscape design and management, an interdisciplinary conference, entitled “Ecological Landscaping: From scientific principles to public practices and policies,” was organized in 2007 by members of The Ohio State University’s Urban Landscape Ecology Program. The main objective of this conference was to bring together a diversity of scholars and practitioners—including scientists, engineers, landscape architects, grounds managers and policy makers—to engage in conversations about the available information and future research needs regarding the complexly interwoven social and environmental issues surrounding urbanized landscapes. This special issue of *Cities and the Environment* contains a series of papers drawn from presentations at that conference, which was held from October 28-31, 2007 in Cleveland, Ohio, U.S.A.

To guide the conference’s conversations and presentations, an organizing framework (Figure 2) was created to highlight how landscaping practices, scientific principles, and public policies directly and indirectly affect each other to influence the characteristics and dynamics of urbanized landscapes. For example, common lawn management practices have catalyzed research—and thus general scientific principles—about their non-target effects (e.g., negative effects of pesticides on beneficial predators that eat pests). In turn, such scientific knowledge can guide lawn management practices (reducing pesticide applications), which can then spark new research questions (how can the predator populations be increased?). In a similar way, scientific information can lead to changes in public policies that dictate the need for changes in practices (e.g., bans of certain lawn chemicals in the U.S. and Canada). These scenarios exemplify how feedback loops and indirect relationships can emerge among scientific principles, landscaping practices, and policies which in turn collectively influence the ecology of urbanized landscapes. In addition, these points illustrate the value of a simple conceptual framework (Figure 2) for facilitating an interdisciplinary examination of complex relationships among social and ecological variables. Many papers in this special issue highlight the need for such a holistic perspective for improving our understanding of how to best manage urbanized landscapes.



**Figure 2.** Conceptual framework developed for the October 2007 Ecological Landscaping conference held in Cleveland, OH.

As reflected by the conference’s sub-title, an additional theme underlying the conference was that the best available scientific principles (derived from rigorous research and data) should have primacy in guiding the development and adoption of sustainable landscape management practices and the public policies that promote them. Certainly, many recommendations for urban landscape management are derived from scientific research, particularly from the turfgrass and horticultural sciences. Arguably

however, these fields have historically been driven more by the objective of maintaining “perfect” plants than by concern for overall environmental quality and sustainability (although certainly this is shifting in recent years). In addition, factors other than scientific information are known to influence people’s choices about how to manage urban landscapes, including income, aesthetic preferences, advertising, and peer pressure. As such, a key objective for the conference was discussing why, when, and how scientific data and principles should guide development of sustainable management practices and how these principles and practices can be most effectively communicated to landscape managers and policy makers. Indeed, the importance of public science education for bringing about widespread adoption of ecological landscaping practices and policies is probably one of the clearest themes that emerged from the conference, as is reflected in many of this issue’s articles. Although development of effective urban socio-ecology education programs remains a major challenge, the task is made more tractable by the ubiquity of its subject. Because lawns and gardens are familiar and appreciated by the vast majority of people, many opportunities exist for engaging a large audience in thinking about how landscape design and management choices relate to local and global scale environmental issues.

By all measures, the Ecological Landscaping conference was a resounding success. Attendance was higher than expected with nearly 200 participants from universities, conservation and citizens’ groups, landscape architecture firms, and landscape management companies from across the United States and even overseas. More importantly, this conference made very clear the value in bringing together such a diverse group of people for fostering stimulating and productive conversations about the multifaceted nature of urbanized landscapes. Hopefully, this special issue of *Cities and the Environment* has effectively captured some of the energy and insights that the conferences’ attendees generated for advancing the study and practice of ecological landscaping. More than ever, such energy and insights are needed to ensure that the continued pursuit of the American Dream is not incompatible with efforts to create and maintain healthy, biologically diverse, aesthetically-pleasing, and sustainable urbanized socio-ecosystems.

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