

Penn IUR / SILUS 2013 Report

Urban Ecosystem Services and Decision-making: A Green Philadelphia



Credit: Photo by B. Krist for Visit Philadelphia™

Introduction: Ecosystem Services in an Urban Context

The Penn Institute for Urban Research (IUR) and the Spatial Integration Laboratory for Urban Systems (SILUS)¹ convened a one-day symposium, *Urban Ecosystem Services and Decision-Making: A Green Philadelphia*, on May 23, 2013, at the University of Pennsylvania in Philadelphia, PA. The symposium brought together policymakers, practitioners, and researchers from a range of disciplines to examine the role of green infrastructure in the advancement of the environmental, economic, and social well-being of cities, and to develop a research agenda centered around urban ecosystem services. While there has been considerable research that identifies the benefits of ecosystem services broadly, there is less agreement on the benefits provided by *urban* ecosystems in particular. A greater understanding of the role of public policy and practice in sustaining urban ecosystems is also needed.

The symposium highlighted efforts currently underway in Philadelphia that focus on sustaining urban ecosystems. The *Green City, Clean Waters* initiative, the city's nationally recognized stormwater management plan, was signed into action with support from the US Environmental Protection Agency (EPA) in April 2012; it outlines a twenty-five-year strategy to use Green Stormwater Infrastructure (GSI) to protect and improve the city's watersheds and major waterways. In addition, the Philadelphia Mayor's Office of Sustainability launched in 2009 its *Greenworks* plan, which established Philadelphia's first citywide sustainability strategy. These action plans serve as a guiding framework for both public and private stakeholders, providing innovative solutions to the growing concerns about urban sustainability, environmental quality and resilience, and the overall well-being of city residents.

¹ SILUS is a collaboration between the USGS Science and Decisions Center and the Wharton GIS Lab.

The symposium also showcased two federal-local partnership programs to assist in local sustainability efforts: America's Great Outdoors (AGO), initiated to promote conservation and recreation, and the Urban Waters Federal Partnership (UWFP), a multiagency effort to revitalize waterfront communities by reconnecting urban residents with their main waterways.

The theme of the symposium was on bringing a holistic approach to local and regional sustainability planning—bridging multiple geographic scales and political jurisdictions. The daylong discussion pointed to the need to better understand both the progress that has been achieved and to advance a research agenda on ecosystem services going forward.

Discussion: Overview of Speakers and Panel Presentations

As key representative of the work being done in Philadelphia, Katherine Gajewski, Director of the Philadelphia Mayor's Office of Sustainability, presented a broad overview and introduction to the development and guiding principles of the *Greenworks* strategy, highlighting the structure and framework of the multiagency, public-private action plan. Michael DiBerardinis, Deputy Mayor for Environmental and Community Resources for the City of Philadelphia and Commissioner of the Department of Parks and Recreation, provided concrete examples of work on the ground, and addressed the necessity for the City to invest in green infrastructure both to improve the quality of its environment and to remain attractive and economically competitive with other cities. Helping to shape the context and focus for the day's conversation, Carl Shapiro, Director of the USGS Science and Decisions Center, put forth the central overarching question: *How can understanding the provisioning and valuing of urban ecosystem services help inform local decisions concerning priorities for the preservation and enhancement of those services and economic development?*

Presentations were made by key speakers from the USGS: Bill Werkheiser, Acting Deputy Director, offered a federal perspective on the utility of real-time data and science-based quantitative analysis to monitor and value ecosystem services, explaining that you "cannot manage what you cannot monitor;" and David Russ, Regional Director of the USGS Northeast Region, discussed AGO and UWFP, bringing attention to the important collaborative efforts between federal agencies and local governments, in order to address the growing concern surrounding the importance of natural resource protection and responsible urban and economic development. Mark Alan Hughes, Professor of Practice, School of Design, University of Pennsylvania, discussed his role in the development of *Greenworks*, expanding on the need for such initiatives to "align accountability with power." Hughes' presentation helped to focus the conversation throughout the day around holistic, systems-based goals, decision-making, and long-term strategic planning, and addressed the importance of quantifiable benchmarks, objectives, and structures of accountability.

The symposium included three panel discussions on urban water, urban greening, and urban ecosystems research. Howard Neukrug, Commissioner of the Philadelphia Water Department (PWD), described the City of Philadelphia's first-in-the-nation agreement with the EPA to substitute green infrastructure for gray infrastructure in managing stormwater. Participants in this morning discussion considered the importance of getting incentives right, of understanding the scale of impact, and of considering local ecological context within a regional watershed in regard to the connection between land use and water quality for effective policy and planning.

The second panel focused on a broader range of issues, discussing how public agencies and nonprofit organizations are building capacity for managing and valuing green infrastructure, particularly green places and tree canopy, within an urban context. Accentuating the importance of the urban dimension in the overall concept of ecosystem services, the central point made was to highlight the need to provide many ecosystem services to people where they live. Panelists presented new data-driven tools from the EPA for informed decision-making and community planning; highlighted local efforts from the Pennsylvania Horticultural Society (PHS) geared at civic engagement and the growth of volunteerism and philanthropic support for greening programs; and outlined the natural resources research of the US Forest Service's newly created Urban Field Station in Philadelphia.

The final panel, on existing and emerging research on valuing urban ecosystem services, provided a starting point for the focused discussion that followed, which aimed at identifying the gaps, growing needs, and direction of future research.

Going Forward: Developing a Research Agenda and a Community of Practice

The symposium provided an opportunity to better understand urban ecosystem services and how they can be incorporated into urban decision-making and planning. Participants emphasized both an integrated approach and community engagement, highlighting interagency and community-based programs currently underway. Long-term planning was recognized as important, as was learning from ecosystem management experiences and translating new information into adaptive decision-making. Because ecosystems are inherently intertwined, the symposium identified efforts already in place to address water quality and improve the urban tree canopy as dual components of a broad overarching goal. Participants recognized that green infrastructure can produce multi-functional landscapes that serve stormwater management goals while also providing recreational spaces for residents as well as a host of other indirect benefits (including air quality improvements, temperature control, real estate value, and psychological benefits).

While identifying innovative practices and advances in knowledge currently underway, symposium participants also pointed to potential gains from addressing gaps in the knowledge base. They identified the following necessary research advances: better identification and measurement of the value of natural and developed landscapes; better understanding of the biophysical production of urban ecosystem services; and better accounting for their role in people's economic and social well-being in urban areas and beyond. Enhancing the knowledge base in these areas is a first step for better-informed decision-making within and across political jurisdictions. Considering urban ecosystem services in public and private decision-making related to restoring, revitalizing, and protecting natural resources is critical to the ongoing sustainability and well-being of Philadelphia and other cities. The provision of and benefits from urban ecosystem services often transcends city boundaries, and symposium participants recognized how important it is to advance our understanding of the flow of these services.

Symposium participants identified key questions for local, regional, and national decision-makers: How can enhancing urban ecosystem services create more livable places? How can the production and use of these services be incentivized and financed? How can urban ecosystem services that require regional levels of cooperation that cross agencies and levels of government be managed and improved? As the global population becomes increasingly urban, knowledge advances in these areas become even more important. The discussion and findings of this symposium highlighted the need for expanding our knowledge in key research areas to inform decision-makers and pointed to the importance of developing a national research agenda. Symposium participant identified the following

research topics as critical to these efforts: (1) the impact on nature and society of enhancing urban ecosystem services and replacing gray infrastructure with green infrastructure; (2) consistent methods of identifying, describing, and measuring values from natural and developed landscapes that cut across diverse groups of stakeholders; (3) practices of learning from management experiences and incorporating new information into adaptive decision-making (4) development of incentives to encourage efficient behavior that considers benefits from nature that are not apparent in markets; and (5) methods and measures of urban system resilience and how connections between developed and natural landscapes can enhance ecological and societal resilience.