

## Proposal for Special Session at the ACES Conference 2010

### *Ecosystem Services in Urban and Urbanizing Areas*

**Session Organizer: Ann P. Kinzig**

**Session Title(s):** The overall session will be entitled *Ecosystem Services in Urban and Urbanizing Areas*. We are, however, requesting three time slots for this session, with the following sub-headings: (a) *Tools and Conceptual Frameworks*; (b) *Case Studies*; and (c) *Integrating Science and Practice*

**Brief Description:** The session will cover ecosystem services in urban and urbanizing areas. These are some of the most important and challenging areas for the management of ecosystem services, since they are profoundly modified environments and house a majority of the world's population. Thus the local delivery of ecosystem services will influence the quality of life of an increasing majority of the planet's residents. At the same time, the delivery of many ecosystem services reaches well beyond the reference patch supplying services; the ways in which urban areas are structuring their immediate hinterlands can have profound consequences for the delivery of ecosystem services in very distant locations. The breakdown of disease regulation in one municipality can, through globalization, affect every other city on the planet.

Management of ecosystem services in both urban and non-urban areas is challenged by trade-offs in ecosystem services that can occur both locally and across scales. In arid environments, for instance, the need to manage water supplies by utilizing drought-tolerant landscaping can reduce the capacity of urban vegetation to regulate climate, exacerbating the urban heat island effect. Similarly, the need to ensure continued delivery of freshwater to local residents can compromise the interest of more distant people in the "water for nature" that would maintain habitats and genetic diversity.

In this set of sessions, we will focus on the conceptual frameworks and tools, case studies, and coalitions that inform effective management of urban ecosystem services. The first session, on Tools and Conceptual Frameworks, will describe some of the ecosystem-service trade-off and management decisions that affect urban ecosystems, and describe some of the tools used to assess ecosystem service flows and values. This session will include both ecologists and economists. The second session, on case studies, will focus on interdisciplinary assessments of ecosystem services in Phoenix, Stockholm, and a southern hemisphere city (tentatively in Southern Africa). Presenters will again be both ecologists and economists. In the third session, we will discuss the challenges faced by managers in assessing and managing the flow of multiple services, emphasizing in particular the challenges of ecosystem services and disservices that flow across jurisdictional boundaries.

**Synergistic Activities:** We will be combining this special session with graduate-student training activities under a National Science Foundation sponsored Research Coordination Network entitled "Biodiversity and Ecosystem Services Training Network" (BESTNet). Using BESTNet funds, we will be able to cover expenses for all invited speakers in the three sessions, but will also support approximately a dozen graduate students for the ACES conference. Invited speakers and students will engage in a set of activities during and for one day after the ACES conference. All students, for instance, will be required to submit an abstract for a poster or oral presentation. Speakers will meet with students daily to discuss the day's conference activities and devise mechanisms for exchanging information on what has been learned.

**Conference Themes:** The proposed sessions cover all four of the conference themes. Under *Landscapes, Geography, and Mapping* we will touch on landscape dynamics, the distribution of benefits, and scale issues. Under *Measures and Values* we will be discussing economic valuation of provisioning, regulating, and cultural services. Under *Drivers of Change* we will have a clear focus on urbanization, with a related focus on development. And under *Institutions and Decisions* we will have talks that focus on tools, and communicating with decision makers and stakeholders.

**Proposed Session Agenda:**

***I. Ecosystem Services in Urban and Urbanizing Areas: Tools and Conceptual Frameworks:*** This session will consist of a 10-minute introduction, 3 20-minute talks, and a 20-minute panel discussion involving invited speakers. The session organizer (Ann Kinzig) will introduce all three sessions.

*Invited Speakers*

Linda Fernandez, Associate Professor, Department of Environmental Sciences, University of California at Riverside (tools for assessing pollution control and natural resource protection)

Peter Kareiva, Chief Scientist and Director of Science, The Nature Conservancy (assessing urban ecosystem services in the Natural Capital project)

Charles Perrings, Professor of Environmental Economics, Arizona State University (tools for assessing transboundary flows of ecosystem services)

***II. Ecosystem Services in Urban and Urbanizing Areas: Case Studies***

This session will consist of a 10-minute introduction and 4 20-minute presentations.

*Invited Speakers*

Joshua Abbot, Assistant Professor. School of Sustainability, Arizona State University (valuing water for urban ecosystem service provisioning)

Thomas Elmqvist, Professor of Natural Resource Management, Stockholm University (assessment of ecosystem services in Stockholm, Sweden)

Nancy Grimm, Professor of Life Sciences, Arizona State University (assessment of ecosystem services in Phoenix, Arizona)

Jane Turpie, Research Associate, Percy FitzPatrick Institute of African Ornithology, University of Cape Town, South Africa (managing urban and peri-urban estuaries in sub-Saharan Africa)

***III. Ecosystem Services in Urban and Urbanizing Areas: Integrating Science and Practice***

This session will consist of a 10-minute introduction, 3 20-minute talks, and a 20-minute panel discussion.

*Invited Speakers*

Christine Alfsen-Norodom, UNESCO (communicating with national governments on issues of urban development and ecosystem services)

Patricia Gober, Professor of Geography, Arizona State University (science-practitioner assessment of urban water use and nighttime cooling in Phoenix, Arizona)

Jose Sarukhàn, Professor, Universidad Nacional Autónoma de México (global assessments of ecosystem services)

**Audience for Session**

All three sessions will present both current research and practical tools and applications, and are intended to be of interest to academic scientists and practitioners alike, particularly those working on or near urban systems. Audience members will be exposed to the most current thinking on both ecological flows of ecosystem services and methods for their valuation, and for understanding and managing trade-offs in ecosystem services.

**Organizer of Session**

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*Qualifications of the Organizer:* Ann Kinzig has been conducting research on coupled social-ecological systems for nearly two decades, with over 75 publications focused on resilience, urban ecology, ecosystem services, the science-policy interface, and related topics. She is the co-director (with Charles Perrings) of the ecoSERVICES group at Arizona State University, and is a lead investigator on a John D. and Catherine T. MacArthur Foundation grant on *Advancing Conservation in a Social Context*. Kinzig was selected as the first American Association for the Advancement of Science’s (AAAS) Roger Revelle Fellow, and in that capacity served in the Office of Science and Technology Policy in the Clinton Administration from 1998-1999. She is also an Aldo Leopold Leadership Fellow, and is an elected Fellow of the AAAS.

**Contact Information for Invited Participants**

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