

Ecology and Planning: The New Perspectives

By Jean Matthews

"Integrate the processes involved in landscapes, describe it in terms that planners and developers can understand, and then put it all to use."

They were all there to hear the challenge: a mix of more than 200 planners and developers, consultants and builders, lawyers and resource managers, information specialists and scientific academicians, meeting in Sacramento, CA, on Feb. 8-9, for a conference on Ecology and Planning: The New Perspectives.

The speaker was Paul Risser, author of *The True Prairie Ecosystem*, vice-president of research at U/NM, Albuquerque, and a founder of the US Section of the International Society for Landscape Ecology. He was part of a conference put together by Dana Abell, consulting ecologist with U/Cal Davis, out of recognition of "the whole new fields" arising from the last decade of professional ecology. These new fields, whose presentations were made by people who had a large part in defining them, "have altered many of the perspectives that have influenced management decisions for nearly a century," Abell explained, and upon this thesis the conference was built.

Anne Whiston Spirn, successor to Ian McHarg as chair of the U/PA department of landscape architecture and regional planning, addressed the opening

Tim Allen, in his attempt to impress the conferees with the importance of "how you look at things," resorted to the eyelash mite that lives on human eyelids. His context was a discussion of the decision that planners must make as to whether something is an organization, a population, a community, a landscape, an ecosystem, a biome, or a biosphere.

In the case of the eyelash mite, he said, "you have us, and you have the mites. We're big; gravity matters to us. The mites are tiny; surface tension matters to them. So what do we, with our comparative bulk and long lives, represent to the mites? A reliable resource?"

Question: At what hierarchical level does that put us? And the mites?

"There is the real world out there," Allen said, "that doesn't care *what* we call it."

evening session on "deep structure in the urban landscape." Spurr is currently putting into practice in a major design and planning project for West Philadelphia the concepts of her book, *The Granite Garden: Urban Nature and Human Design*. She dealt with the tendency nature displays for reasserting its own inherent patterns (such as stream channels and their floodplains) on the cultural landscape of cities, suburbs, and other developed lands.

The full-day session opened with Bruce Wilcox describing a newly redefined field, conservation biology, in whose redefinition he has been energetically involved. Wilcox was co-editor of *Conservation Biology - An Evolutionary and Ecological Perspective*, and was a founder and early director of the Conservation Biology Center at Stanford. He now is president of the new Institute for Sustainable Development at Menlo Park, CA. He touched on the organization of biological diversity at the functional level (molecular, populational, species, and ecosystem), and their components (genes, populations, species, and communities), and gave examples of each before proceeding to the various theories (island biogeography, equilibrium, etc.). He wound up with examples of "the theory-management connection." These examples (such as management strategies for raptors) amount to proof, he said, "that conservation biology is not just a bunch of theories. It can be, and has been, used to insure population viability and to better design nature reserves."

"Restoration is the acid test for ecology" - Edith Allen borrowed her opening statement from William Jordan, editor of *Restoration and Management Notes*. Allen, a faculty member in San Diego State University's biology department and editor of *The Reconstruction of Disturbed Arid Lands*, described the unseen world involved in true restoration (versus "reclamation") and observed that "nothing succeeds like succession."

In line with that thought, she described much of restoration work as involving preparation of the soil and then helping it build itself toward climax instead of trying to establish immediately what it took nature tedious time to bring about. She even had a kind word to say for alien (exotic) species that may be better adapted to fast establishment and thus able to save the topsoil "until someone can figure out how to re-establish native grasses."

Risser followed Allen, with a resume of the scales of visible landscapes - plant, field, farm, watershed,

biome, and globe, and continued with a description of "the science of patches" that deals with the patterning of the land. He dwelt on how this comes about in nature, how man participates in its change, what maintains it under varying degrees of human control, and how patterns influence the processes that affect whole expanses of land.

Stephen Gliessman, director of the agroecology program and faculty member for environmental studies at U/Cal Santa Cruz, and author of *Agroecology: Researching the Ecological Basis for Sustainability*, presented the ecological perspective to all phases of the planting/harvesting/husbanding cycle. In the process he managed to make fresh sense out of things that shrewd farmers have known for centuries. Among his slides was one of the city of Shanghai, within the boundaries of which 12 million people are totally self-sufficient for fruits and vegetables, employing the city's human excrement in production of the food from which it sprang (and will continue to spring).

Robert Colwell, professor emeritus in the school of forestry and resource management at U/Cal Berkeley, and author of *A Manual of Remote Sensing*, described the evolution of remote sensing (of which he was a pioneer) in the inventorying of natural resources.

"Mozart time" - the grand blending of all the themes - was provided by Timothy F.H. Allen as he wound up the conference with his systems view, linking much that had been presented. Professor of botany at U/WI Madison, Allen was led by his work on algae communities into systems analyses of disturbed ecosystems. He is writing a book, *Toward a Unified Theory of Ecology*, that will be ready in mid-1990.

Allen admonished the conferees to "define the system you are attempting to work with, and then take responsibility for your definition."

"I'm going to present the hierarchical theory," he said, "and remind you that if you look at the world in different scales, it will look different." Deep structure he defined as the larger scale, surface structure as the finer scale. "If you don't have a handle on the scale at which you're looking and working, you can get lost," he said. He took exception to the talk about "levels of organization," and preferred the idea of "scale of the system." In scaling, he said, you determine your *limits* (the biggest scale you will consider and beyond which all else is excluded) and your *resolution* (the smallest scale with which you will concern yourself).

"You simply cannot cram everything into a data compressor and come out with an integrated ecosystem - not one you can poke and push and upgrade every five minutes or so." The trouble, he said, is that some very small things turn out to be terribly important, and they often don't show up for years. "What our early efforts at total ecosystem modeling told us," he said, "was that if you don't scale your system properly, when you run your data you could die in the 'rounding out'."

Ecology, Allen concluded, is a "soft science" that demands we look at it in the right way - which includes a way that is politically workable.

Abell, who designed and coordinated the conference, noted that a good beginning in that direction had been made. The conference was planned as an in-depth introduction to larger-scale conferences being planned on all the subject areas for later dates and aimed at the widest possible mix of those involved with landscape planning and development. See the *Park Science* calendar page for information.