



Ecosystem health subject of landmark gathering

The first gathering of its kind in the United States, the International Congress on Ecosystem Health will bring together more than 1,500 researchers, policy-makers, conservationists, industry representatives and others from around the world to Sacramento Aug. 15 to 19, for a grand discussion on the management of complex ecosystems to conserve the integrity of natural resources and environmental health.

"This topic will determine the future quality of life on this planet, because we're responsible for the present conditions and capable of determining the future conditions," says Bill Lasley of the UC Davis School of Veterinary Medicine, co-convenor of the Congress with David Rapport, president of the International Society for Ecosystem Health. "We need to share and assimilate ideas, and find some common ground."

More than 200 presenters will focus on preventing, diagnosing and predicting global and regional environmental problems. "The Congress is a forum for anyone who needs to hear what's on the minds of the more visible thinkers in this area," Lasley says. "It's an opportunity to think and plan for the future."

The fundamental ecosystem questions for agriculture, Lasley says, are: "How has farming affected the environment? And how can farming be changed?" Because more ground space is involved in farming than in any other industry, agricultural research is shifting its focus from "harvesting, producing and extracting to long-term management," he adds.

The Congress is organized and hosted by UC Davis, the office of the UC Vice President for Agriculture and Natural Resources, and the International Society for Ecosystem Health. It builds on the work of the first symposium on ecosystem health in Ottawa, Canada in 1994, and a second symposium in Copenhagen in 1996.

Scheduled keynote speakers include Kenneth Olden, director of the U.S. National Institute of Environmental Health Sciences and the National Toxicology Program; Ambassador Ola Ullsten, former prime minister of Sweden; Robert T. Watson, director for environment at the World Bank; Douglas Wheeler, former Califor-

nia secretary of resources; and science writer Laurie Garrett, author of *The Coming Plague*.

In addition to more than 40 technical workshops, scientific field trips will be offered to nearby sustainable agriculture operations and wetlands, the San Francisco Bay, Lake Tahoe, Clear Lake, Monterey Bay, and the Napa and Sonoma wine regions.

Finally, 14 discussion forums will develop recommendations for future use by policy-makers, scientists and environmental organizations.

Agriculture and human health

A number of technical sessions will be of interest to the agricultural community. For example, a symposium chaired by Marc Schenker of the UC Davis School of Medicine will juxtapose the ecosystem effects of agriculture on air, water and soil with human-health vectors such as pesticides, agricultural chemicals and infectious pathogens.

As agricultural practices have grown more intense, there has been a commensurate rise in impacts on ecosystems and human health, says Schenker, director of the UC Agricultural Health and Safety Center (AHSC) at Davis.

The scheduled speakers include Paul Gunderson, director of the Marshfield Medical Research Foundation in Wisconsin; Robert Flocchini, director of the Crocker Nuclear Laboratory at UC Davis; and Michael O'Malley, associate clinical professor at the UC Davis School of Medicine.

Dean Cliver of UC Davis will also discuss proposed research into the impacts of infectious disease agents in manure on agricultural field



Native grasses and plants are restoring the riparian ecosystem along a canal at Hedgerow Farms in Winters. Grower John Anderson will discuss "agroecology" during the upcoming ecosystem congress.

John Anderson



The effects of agricultural practices on human health and the environment are the subject of an ecosystem congress session.

workers. "We're interested in the transmission of infectious diseases through the environment and how they're transported from person to person," Cliver says. "If manure use constitutes a risk to consumer health, how

about the people working in the fields?"

Pathogens such as *E. coli*, *Salmonella* and *Cryptosporidium* are spread in manure and shed in human feces; Cliver's team is developing stool sampling methods in collaboration with AHSC to determine the infection levels among workers.

Climate change

Stephen Schneider, chair of a session called "Climate Change and Ecosystem Health," says there is little debate in the scientific community about whether climate change is happening. Marine communities, for example, are already showing effects, and dramatic weather events have been occurring more frequently.

There is considerable controversy, however, over whether climate change is "an unusual event of nature or something we're contributing to," says Schneider, professor in the department of biological sciences at Stanford University. Schneider is convinced that at least part of the observed climate change can be attributed to human activities.

The challenge for agriculture, Schneider says, is whether changes in the global climate will be gradual, or flip quickly to something radically different. "Most people in agriculture will be able to adapt if it is smooth and predictable," he says.

But the odds are perhaps 1 in 10 that a radical shift will occur in our lifetimes, Schneider warns, resulting in more droughts and floods. "We can't say it's not going to happen, and, in fact, several lines of evidence suggest it is a real risk."

Scheduled speakers for the session include Alan Pounds of Monteverde Cloud Forest Preserve in Costa Rica, Jeff Price of the American

Bird Conservancy in Boulder, Colorado, and Rafe Sagarin of the UC Santa Barbara department of ecology, evolution and marine biology.

Agroecology

The integration of agricultural production with ecosystem health is the focus of a session on agroecology chaired by UC Department of Agriculture and Natural Resources regional director Terry Salmon.

Agroecology seeks to integrate ecosystem function, wildlife habitat and biodiversity into modern row-crop farming, explains John Anderson of Hedgerow Farms, who plans to speak at the session and lead a farm tour on Aug. 19.

Additional scheduled speakers include Miguel Altieri of UC Berkeley, on agroecological frameworks; John Hopkins of the UC Center for Water and Wildlands Resources, on fallow land patches; Jeff Mitchell of the UC Davis department of vegetable crops and weed science, on reduced disturbance agroecosystems; and Mary Kimball of the Yolo County Resource Conservation District, on in-situated hedgerows.

For decades, American row-crop agriculture has prized "clean" farming, with "all the edges, roadsides and field borders kept free of vegetation for weed control," says Anderson, a retired UC Davis veterinarian. But by planting native vegetation such as perennial grasses, wildflowers and trees around farms and drainage canals, farmers can provide prime habitat for beneficial insects, reptiles, amphibians and many bird species, including game birds such as pheasants, turkeys and ducks, Anderson says.

From their native-grass-seed and vegetable farm in Winters, Anderson and his wife Marsha are at the vanguard of a nascent movement to promote habitat restoration in and around farms and orchards in the Central Valley. Many of California's Resource Conservation Districts are promoting the concept, Anderson says, with the support of environmental organizations, local Audubon societies, game bird advocates such as Ducks Unlimited and state wildlife officials.

To register for the ecosystem congress, contact Nancy Barker at ehc@ucdavis.edu or (530) 754-8507, or visit the congress website at www.vetmed.ucdavis.edu/centers/iseh/ecosystemhealth.html.

— Janet Byron