

Political Scene

Policy shifts in ecosystem management

Earth scientists play increasingly important roles in ecosystem research, management, and policy-making, whether the issue is sustaining agricultural and forestry production, conserving species, preventing soil erosion, or protecting water quality. This pattern reflects a growing awareness that seemingly unrelated disciplines such as landforms, hydrology, climate, and soils interconnect and influence ecosystem processes.

In ecosystem research, earth scientists are no longer relegated to studies of soil and plant community relations and biogeochemical cycling. Since 1980, for example, hydrologists, geomorphologists, and geographers have taken part in the National Science Foundation's Long-Term Ecological Research (LTER) program, examining effects of natural disturbances such as fire, hurricane, flood, drought, and landslides on a variety of ecosystems. The emphasis on long-term studies within LTER (indeed, several field experiments have 200-year lives) is being augmented with studies on

how ecosystems function over large landscapes and regions. Earth scientists have been particularly important in this step, employing knowledge of geologic, hydrologic, climatic, and topographic controls on ecosystem patterns and processes.

Within land-management organizations, earth scientists are more involved in decision-making than ever before. Fifty years ago, for example, geologists working for the Department of Agriculture's Forest Service in the Pacific Northwest had virtually no role in forest-land management. By the 1960s, Forest Service geologists were locating rock sources for road construction, and assessing soil and rock along rights of way. In the 1970s, earth scientists were identifying sites where landslides might occur — so that erosion from forest cutting and construction could be minimized.

In past years, foresters — trained primarily in management of individual forest stands — set the management path. But today, earth scientists have moved from supporting roles within the Forest Service to leadership positions. In Washington state, President Clinton's Northwest Forest Plan calls for a watershed analysis in which geoscientists will assess hydrology, geomorphology, and ecosystem properties as future watershed and ecosystem designs are developed.

Many federal agencies now take an ecosystem approach to managing, protecting, sustaining, and developing the nation's biotic resources. Specific management plans may vary from agency to agency and from one environment to another, but there is a common theme of using scientific understanding of ecosystems as a decision-making basis — regardless of local objectives.

What does the future hold for ecosystem science, management, and policy? Many significant earth-science and ecosystem management proposals were considered during the last congressional session, but the 104th Congress has put these initiatives on hold. The present mood on Capitol Hill favors private-property rights and an overall reduction in government. Funding for ecosystem management and research has come under direct attack, and proposals (such as the recommendation to abolish the U.S. Geological Survey) are being considered which would reduce the presence of earth science in federal science programs. Against this backdrop, proposed legislation affecting forestry, endangered species, wetlands, and grazing, has the potential to stall ecosystem science and policy initiatives, creating seeds for resource conflicts in the future.

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Polls indicate that Americans want a clean and healthy environment, but they seldom base their votes on environmental issues. The logic of using an ecosystem approach to sustain biological diversity and productivity is compelling, and a variety of laws direct federal agencies to do so. Despite political uncertainties, we see a continuing trend to bring ecosystem and earth sciences into a closer working relationship, especially in natural-resource management.

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Tax bills to watch

The current (104th) Congress has seen fit to follow the example of its predecessors, and proposes to use taxation as a legislative device to address a number of issues important to several parts of the geological community.

Several tax bills affecting the domestic oil and gas industries, for example, have been introduced during the past months. On Jan. 4, 1995, Sen. John Breaux and Sen. Bennett Johnston (both D-La.), cosponsored three legislative proposals to amend the 1986 Tax Code, in support of domestic oil and gas production. Senate bill, S. 32, would provide a tax credit for the production of oil and gas from existing marginal wells and from new oil and gas wells. House bill, H.R. 577, which supports the same provisions, was introduced by Rep. Jimmy Hayes (D-La.).

A second tax bill cosponsored by the Loui-

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