# Roles of research scientists in natural resource decision-making

Tom Paragi reviews this article by T.J. Mills and R.N. Clark published in 2001 in the journal *Forest Ecology and Management* (153: 189-198).

Forest ecologists Thomas Mills and Roger Clark, of the U.S. Forest Service's Pacific Northwest Research Station used their professional experiences to illustrate the many pitfalls awaiting scientists who become engaged in policy decisions involving natural resources. Mills and Clark contrast the merits of "routine ecological research" taught in college (e.g., good study design, calm environment of inquiry, and emphasis on quality of scientific findings) to the imposed time frames of regulatory structures and legal pressure by interest groups to make decisions on complex ecological and social issues, often within economic constraints. Although science cannot solve conflict over value judgments on controversial practices in natural resource management, it can be a means to enable discussions among competing interests to define the range of social or economic choices and focus evaluation on the consequences of specific choices. It is critical that scientific criteria be properly generated and presented objectively and accurately. For example, there must be consensus on problem definition and data needs among stakeholders before scientists initiate data collection, particularly where a process such as adaptive management needs decision criteria clearly spelled out before a management experiment begins.

Mills and Clark believe that classification of uncertainty in adaptive management is critical to maintain credibility of scientists, especially when educating the public. They caution scientists not to internalize their own risk preference or act as a data filter, but instead to leave the role of judging acceptability of risk to decision makers who are typically elected or appointed officials. Keeping separate organizational structures for scientific review and subsequent policy implementation (which is based on those scientific recommendations deemed acceptable in the context of social and economic factors) is one means of clarifying the different roles and ensuring that the administrative record reflects what the scientists actually said.

The Alaska Department of Natural Resources, Division of Forestry used the model presented by Mills and Clark in recent updates of forest practice regulations on fish habitat and water quality. A scientific and technical committee provided recommendations to a separate implementation group composed of representatives from resource agencies, environmental organizations, industry, and the public. (A briefing paper by DNR describing the process in detail is available on request). The resulting draft statutes were remarkably passed without opposition by both houses of the Alaska Legislature, in separate processes for all three forested regions of the state.

The Mills and Clark paper should be required reading for students or young professionals contemplating a career in natural resource management. It is also a useful reference for scientists evaluating controversial issues for the public process in resource management.