

Natural Disturbance And Management Of Wilderness Ecosystems

In recent years the importance of natural disturbances to the maintenance of natural ecosystems has become obvious to wilderness managers and ecologists alike. Natural disturbance and the management of wilderness ecosystems was the theme of a recent workshop jointly sponsored by the National Park Service and the Nature Conservancy. The workshop, conceived and organized primarily by Dr. Norm Christensen, professor of Botany at Duke University, with the assistance of David Parsons, Research Scientist at Sequoia and Kings Canyon (SEKI), and Willard Rose of the Nature Conservancy in North Carolina, began on Aug. 18, 1988, in conjunction with the Ecological Society of America (ESA) meeting in Davis, Calif. Made up of approximately 25 from each agency, the group included superintendents, interpreters, resource managers, and scientists.

The first day's presentations were also part of a featured ESA symposium. Peter White (UNC Chapel Hill and ex-NPS scientist) discussed Natural Disturbance and Ecosystem Management: Theory and Practice, and the paradoxes of preserving ecosystems that must change while at the same time being subjected to human management. He emphasized the importance of 1) understanding (the role of research), 2) managing (management decisions are inevitable), and 3) evaluating (providing feedback on the adequacy of your understanding and the effectiveness of your management) the occurrence and impacts of disturbance in natural ecosystems.

Other speakers presented case examples of the challenges posed by managing for natural disturbance: Mt. St. Helens (Peter Frenzen, USFS), the Yellowstone natural fire program (William Romme, Ft. Lewis College and Don Despain, NPS), fire as a disturbance factor in the southeast (Ron Myers, TNC), managing the cumulative effects of insects, parasites and fire (Dennis Knight, U/Wyo), the bison grazing - fire interactions on the mixed prairie (Allen Steuter, TNC), and impacts of anthropogenic air pollutants on the high elevation forests of New England (Charles Cogbill, Goddard College). Doug Sprugel (U/Wash), concluded with a discussion of the importance of temporal variability in understanding and managing disturbance regimes. He suggested that all too often the forest structure or animal community desired by park managers as the status quo has been selected simply because it was there at some point in the past.

The workshop continued on a field trip to Fresno, where Tom Nichols, SEKI fire ecologist, presented a slide show on the park's natural fire management program and David Parsons led a discussion of the issues and challenges that SEKI has faced in implementing a program of restoring natural ecosystem processes. An all day field trip to Sequoia NP followed. Plenary talks by David Graber (SEKI Research Scientist) on managing for uncertainty and Bill Tweed (SEKI Management Assistant) on visitor expectations, were preceded by a field trip through the Giant Forest. Organized field discussions were led by Christensen and members of the Park staff on monitoring, interpretation, research, management and critique of the Park's program for restoring fire as a natural element in the sequoia mixed conifer forest.

This program, taken as a vivid example of the role that both natural disturbance and man's interference can have in wilderness ecosystems, stimulated debate and discussion (Parsons will report on the controversy surrounding and the research approach to solving this issue

in a future *Park Science*.) That evening the group attended a campfire presentation by sub-district interpreter Greg Fauth on fire ecology in the Sierra Nevada.

On Saturday, working groups considered basic science issues and needs, management plan development, and monitoring. Participants stressed the importance of clearly articulating management objectives and making decisions based on the best possible information, including understanding the causes and effects of climate changes as well as other natural and man caused disturbances.

It is difficult to allow anything to go extinct if you can't be sure whether that extinction has been influenced by human activities. Thus, management decisions often become value judgments. There was general consensus that managing for disturbance is no simple matter, and that better information is needed about what resources we have, the ecological processes influencing them, and the consequences of alternative management scenarios.

The session organizers are preparing a report to the supporting agencies detailing the specific conclusions reached and plans are underway for a special issue of *Environmental Management*, in which the key presentations would appear.

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