

Global Issues

This section is an effort to make those of us with our heads in the seedlings stand up and take a look around at the larger natural resource issues that affect us all. I've tried to capture the salient points of a couple of recent articles, and encourage you to get copies of the entire articles. Directly, or indirectly, these issues are shaping the future of our profession.

Ecology, Public Opinion, and Natural Resource Management

Change is a Basic Fact of Ecology

In spite of what most people believe, there is no such thing as "natural balance," a "balance of nature," or a "natural steady-state system."

Ecosystems, whether affected by people or not, constantly change, and have always done so. Many of those changes dramatically affect the ability of forests to produce goods and services that people depend on. Some ecosystem changes are caused by natural conditions that evolve at a very slow pace. Climate change, species evolution and migration, and soil formation are examples. Others occur in an instant. Disastrous wildfires, major storms, and volcanoes do their thing, and will continue to do so. Nature is neither easy, nor particularly kind.

Forests don't always respond to gradual changes in gradual ways. A forest may tolerate a gradual shift in climatic conditions, or a change in nutrient output, with no perceptible impact on trees or other major species for many years. Significant change may be hidden for many years within the "normal" variation in the system-trees live and die, animal populations cycle up and down, and the weather varies from year to year. But forests may also pass through a "threshold" where the trees suddenly die. We can see examples of these catastrophic events -the Yellowstone fires, death of large areas of forest in the Appalachian mountains and northern Europe. The causes for these declines are

complicated and may be impossible to identify.

The "chaos theory" states that many events in the environment occur in a random, unpredictable pattern, and that those random events sometimes are very important in influencing what happens to an ecosystem.

The fact remains, however, the concept of a stable climax plant community doesn't apply.

Global Changes

The industrial revolution and the exponential increase in human population are causing changes on a global scale. Science has a hard time with these issues because what's happening is different than anything that has happened in the past, and there's no way to test global changes in a laboratory. Because scientists can't experimentally prove cause and effect, these global events must be tested with computer models which still are, in the words of their operators, "very crude approximations of reality."

In spite of this uncertainty, the likelihood of significant climate change is too high to ignore, and these changes are happening at an unnatural pace. Forests and other ecosystems face a hard time adjusting to the rate of climate change,

which may be 3 to 10 times faster than species can migrate. Ecosystem fragmentation also prohibits natural adjustments to environmental change.

Public Opinion and Natural Resource Management

Policy governing the management of public lands in this country is made by political bodies that base their decisions on public opinion. It is in this area that I see the greatest threat to our forests. It comes from the rapidly growing distrust of natural resource management in any form. It stems from the underinformed or misinformed being led to believe that human management is the cause of our problems, so management should be abandoned in favor of "nature knows best".

But that suggests that we're responsible for figuring out what is acceptable to people on those forests, and what we can do that is most consistent with the ecological and economical realities that we face. To many in forest politics today, the answer is a different kind of management based more on the preservation of ecosystem structures and processes than on the resulting quantity of products. That makes a lot of sense, but there are still many political debates ahead as to how such management can be accomplished.

Another stumbling block is a growing fascination on the part of many people with the concept of "pre-settlement conditions," as though those had some magical quality. That idea must be approached with caution. First of all, we don't know what those conditions were and second, pre-settlement cannot be said to "pre-management." Native Americans manipulated forest and range lands considerably with the use of large scale wildfire. Even if we want to, we

can't return to that. Nothing is the way it was in the 18th century and the forests can't be either. We have to accept that humans have a profound effect on ecosystems on a global scale, and the magnitude of that effect will continue to increase with the population.

So, what to do. Natural resource managers need to accept and plan for change. Specifically, we need to try and predict the onset of large-scale destructive events and avoid them if possible, as well as manipulate the vegetation so that it is more resilient under the pressures of stress. That means decentralized, science-based management and decision-making that is flexible and able to respond to fast-changing conditions. It needs to involve the public, but that public must be informed enough to see and understand what's actually happening in the forest. And it requires that the public be willing to trust professional managers to make reasonable decisions

Source:

Sampson, N. The Conservation Legacy 31. Pinchot Institute for Conservation.

Smith, D.I. 1993. Forest management and the theology of nature. *American Forests* 99(11/12): 13-16.

