THE REDESIGNED FOREST

Breaking Through The Cultural Barriers
By Robert G. Lee

Chris Maser is one of the most controversial pioneers in the current struggle to reform forest management practices. His writings and public addresses cause people to question current practices and consider more “ecologically sensitive” approaches to managing forests. Members of the general public and environmental community are inspired by his vision. In this sense, Maser is a major player in the current debate over old-growth preservation.

Thus it behooves foresters to become familiar with his viewpoint, and The Redesigned Forest is a good introduction. It is a bold effort to use biology, psychology, and religion to support old-growth preservation and ecologically sound forest management. Maser invites challenge from scientific colleagues by mixing fragments of Buddhism, Christianity, psychotherapy, and even Kubler-Ross’s stages of dying with comments on forest management and findings from forest biology. Such a collage of perspectives may frustrate, or even anger, the scientifically centered reader. However, readers should not assume that the subject matter of his book is simply forest biology.

A Changing Perspective
This is a book about change—personal change, and change in ways of thinking about nature, economic organization, religious beliefs, and the role of forests in society. Readers learn how previously simple issues involving forest management have provided a stage on which our society is struggling to cope with a rapidly changing world. Forests have become a central symbol for stability and continuity in the face of turbulence and uncertainty. Hence, an increasingly important role for forests is to provide people with a firm grounding in the continuity of past, present, and future when so many aspects of their lives are blurred by the pace of change. For Maser, our ecological problems are fundamentally psychological and religious problems. While discussing the redesigned forest, he is also seeking to redesign himself and his society.

Maser makes his most significant contribution by breaking through the cultural barriers that have separated society from nature, the life of people from the life of forests. Foresters have perpetuated a prevalent cultural myth that forests are simply biological entities that have little to do with people. People are here and forests are there. For years foresters were taught that they needed to know very little about people to manage a forest.

Maser has the courage to remind his biological colleagues that forests have meaning to people because people endow them with meaning. Forests don’t speak for themselves, but are interpreted through the matrix of cultural beliefs and values we impose on them. Maser is seeking to change that matrix by questioning both the separation of people from nature and the values we assign to forests, and placing more emphasis on recent discoveries about natural ecological processes.

Symbols
The primary weakness of this book is its reliance on trite slogans, superficial analyses, and logical inconsistencies. Maser repeatedly tells the reader there are no enemies, that it is futile to assign blame. Then he apparently gets lost in this amoral systems logic and blames capitalism, especially the short-sighted profit-seeking variety, for “degrading forest ecosystems.” Despite the inconsistency, Maser is to be complimented for clearly stating his assumptions. Unlike many advocates of radical reform, he openly reveals his beliefs about profit-seeking behavior.

In doing so he provides his readers with an important insight into why the spotted owl has become a symbol for the survival of old-growth forests: “The real issue is not
The Redesigned Forest is a powerful moral statement... for a new ethics of forest management

What About Us?
Although implicit in his message, what he does not tell his readers (and possibly even himself) is that the struggle to reform forest management is also a struggle to change our economic system. He also doesn't propose an alternative to capitalism. Does he realize that "Nature's design" for forests does not allow for very much human use, and would require substantial reduction in wood products consumption? Is he aware that government ownership of the means of production has caused far more environmental destruction than regulated and enlightened capitalism?

But what worries me most is the author's lack of ecological thinking regarding the maintenance of human populations already in existence. Substituting steel, plastics, or other materials for wood will have adverse ecological effects (including increased energy consumption and pollution)—effects that could be far more damaging to the global ecosystem than sustained cropping of trees. How are we to sustain all these people? This ecological naiveté convinced me that the struggle to reform forest management has far more to do with morality than the science of economics or ecology. This is clearly illustrated when Maser parrots the anticapitalist litany many environmental advocates learned from the New Left during the 1960s.

Holism is a basic tenet in Maser's moral universe. He quotes Jan Christian Smuts, the South African politician, author, and advocate for holism, as follows: "The whole [the forest], if one may say so, takes long views, both into the future and into the past; and mere considerations of present utility do not weigh very heavily with it" (p. 150). However, Maser fails to tell us how the forest can take a long view, just as Smuts was troubled by how the whole can take a long view. Who speaks for the forest and who speaks for the whole remains the fundamental question. Maser implies an answer to this question by repeatedly using "we." Yet who is this we? Given his fundamentally moral message, I think Maser is appealing to all of us to reform our thinking.

Only Ecology
At a recent party, a banker (of all people) accosted me with the following question: "Now that you foresters are in trouble over spotted owls, are you going to start teaching ethics?" For many people the issues of forest management have been reduced to a question of environmental ethics. The Redesigned Forest is a powerful moral statement in support of making ecological knowledge the basis for a new ethics of forest management. I am troubled by this proposal because it ignores both broader scientific knowledge and practical experience, and restricts ethical considerations to "ecological values."

Yet I realize Maser is simply articulating ongoing changes in public sentiment about forests. As such, this book is a work in progress, and a chronicle of changes in Maser's own thinking. His next book will undoubtedly address some of these deficiencies. He deserves our attention for helping to pioneer the "new" forest management and for causing foresters to think more about what they do and why they do it. My major regret about this book is that it was not titled The Redefined Forest. This would make it mandatory reading for all foresters.

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A Scientific Review
By Philip S. Aune, William W. Oliver, Robert F. Powers, James R. Boyle, John C. Tappeiner, Dean S. DeBell, and Chadwick D. Oliver

The Redesigned Forest is an intriguing title! Brief review comments on the cover suggest that it is a book of personal values and philosophy concerning management of forestlands. The author was educated as a vertebrate zoologist and worked for the USDI Bureau of Land Management as staff biologist from...
Maser's philosophical discussion is based upon some serious misconceptions

1975 to 1987. An ardent advocate of "old-growth" values, he has achieved acclaim among lay groups concerned with preservation.

**Background**

Pacific Coast forests and associated industries are in transition, and considerable confusion and polarization exists in society regarding management of our nation's forests. Thus, people who wish to understand this transition, controversy, and possible solutions may think the book will provide useful background. It does foster insight regarding the positions taken by some sectors, and as a statement of personal values and philosophy the book is interesting reading. It raises questions about the sustainability of current management practices and the premises on which they are based, and offers an alternative approach—restoration forestry—which the author regards as the only true forestry.

The main theme of *The Redesigned Forest* is that we need a broad commitment to a sustainable forest and that sustainable limits are set by the forest, not by people. Maser believes that young-growth forests are not sustainable under current management practices, and suggests that they must be "healed with humility, love, understanding, and patience." He seems to regard reliance on natural processes, especially those operative in old-growth stands, as the most desired, if not sole, path to such healing and sustainability. He is also skeptical of intensive management practices and appears to view them primarily as agents of additional stress rather than as relievers of natural stress or as a means of channeling natural processes to enhance a variety of forest uses and values, including sustainability.

Unfortunately, Maser's philosophical discussion is based upon some serious misconceptions and contains a great deal of misinformation about forest management and its scientific basis. Such problems can only add to the confusion surrounding the forest management controversy.

**Forest Decline?**

To support his contention that young-growth forests as currently managed are not sustainable, Maser cites a "growing evidence of decline in productivity over large areas of intensively managed forests" throughout the world.

The author resurrects the infamous "Saxony spruce sickness" reported in the nineteenth century when Norway spruce was planted on central European sites cleared of low-quality, natural stands of mixed hardwoods. Although plantations grew well in the first rotation, growth declines sometimes were seen in the second. The cause, according to Maser, was the high demand and withdrawal of ecological resources wrought by intensive plantation management. In fact, the real cause was discovered decades ago (Holmsgaard et al. 1961). Spruce declined principally on sites with poor internal drainage. Removing the more deeply rooted hardwoods from bottomland sites, and the eventual collapse and plugging of old root channels, led to a rise in the winter water table. Waterlogged soil forced the spruce into a shallow rooting habit, leaving them prone to drought stress when water tables dropped in the summer. In short, "Saxony spruce sickness" was not an inherently bad property of monocultures, but simply a poor match of species and site.

"The forests of central Europe are dying," Maser says (p. 69), and he speaks of the Waldsterben, or forest decline of West Germany, as a logical consequence of the cumulative effects of intensive plantation management. Most forest scientists, however, say it is caused by several factors including pathogens, air pollution, and soil chemistry. Moreover, most planted forests of Europe that have been under management for centuries are growing vigorously except for those downwind from air pollution centers. Maser complains that outside investigators "list a variety of reasons for Waldsterben...[but] not one of them is directly connected to intensive management." He dismisses their conclusions without considering that they may be right.

Historical records show scant evidence that growth decline is caused by intensive plantation management (Powers et al. 1990). However, where it has been demonstrated in South Australia (Keeves 1966), the causes are known and can be avoided (Squire et al. 1985). Recent research shows that some plantations in the United States actually are aggrading in fertility (Nowak et al. 1989) and that growth declines evident in some plantations since the 1960s may trace simply to maturation of the plantations or to abnormal temperatures (LeBlanc et al. 1987). Hornbeck et al.
(1986) also suggest that even-aged spruce and fir stands in New England allegedly showing growth decline are actually growing as expected for mature stands of the region.

Maser also cites Sheffield and Cost's (1987) report of apparent growth declines in the southern pinery. Their more extensive document (Sheffield et al. 1985), however, indicates that the decline is far from general. In fact, decline seems to be centered on natural stands on nonindustrial private lands (generally with low or no management). Limited sampling on more intensively managed plantations indicates stable or even increased growth rates. The author also sidesteps voluminous data from the eastern United States showing how planting abandoned, worn-out farmlands with pure stands of conifers has arrested soil loss and restored soil fertility and site productivity.

**Genetic Bankruptcy**

Maser believes that genetic improvement programs are “redesigning” the forest, and he sees three major drawbacks: (1) genetically improved stock lacks predictability and may fail in the future; (2) improved, faster growing trees produce wood with large cells and less heartwood, thereby altering recycling rates and other ecological processes; and (3) improved stock has less genetic variability and thus is less adaptable to changing environmental conditions.

The author assumes that geneticists wish to restructure profoundly the genetic makeup of forest trees and are able to do so. Neither assumption is true. Geneticists estimate that the current selection process can achieve only about a 10–15 percent improvement in growth rate (Zobel and Talbert 1984). Most forest trees, Douglas-fir included, are amazingly variable genetically—so variable that no significant reduction in that variability has been found in stands containing only a few trees that survived wildfire or in progeny originating from seed trees.

Geneticists are keenly aware of the pitfalls of breeding for homogeneity. In the Douglas-fir region, for example, 200–300 parent trees have been selected in each of 81 breeding zones for a total of more than 22,000 individuals (Quam 1988). Furthermore, these first-generation orchards and clone banks will operate well into the next century, at which time improved stock from them will be reaching maturity. Options for adjustments in selection criteria will remain.

Selection criteria encompass rapid growth rates, improved form, disease resistance, and sometimes high or low specific gravity. Amounts and proportion of heartwood and related effects on ecological functions are more influenced by rotation age than by genetic improvement. Parent trees within a seed orchard are selected from a wide variety of environmental conditions within their local geographic area, which allows us to assist natural adaptation by, for instance, moving planting stock from southern seed orchards to more northern areas for outplanting if the climate warms.

**Young-Growth Management**

Perhaps the most disconcerting misconceptions and misinformation in this book are the statements regarding management of young-growth forests. Maser asserts (p. 105–6) that premises of current young-growth management are based on experience with old-growth and that they are false. In fact, more than eighty years of research on growth and development of young-growth forests, managed and unmanaged, provide the scientific basis for current management and yield projections in the Douglas-fir region.

Forest fertilization is referred to (p. 138) as the “plea bargaining” stage of Kubler-Ross’s (1969) five stages of dying. In essence, Maser suggests that as a person may bargain with God to reverse a terminal illness, forest managers may choose to apply fertilizers rather than alter existing beliefs and management practices. However, on two-thirds of Douglas-fir sites, stands respond to nitrogen fertilizer; and forty years of empirical and basic research on forest nutrition have enabled managers to enhance productivity on hundreds of thousands of forested acres.

Despite references to liquidation and exploitation, the author makes no mention of the fact that the Pacific Coast is one of the few places in North America where the forest products industry logged the original forest and never left. The industry invested in and has harvested substantial amounts of the second forest; and third-generation stands appear to have better early growth than their predecessors. We see no justification for impugning or rejecting the silvicultural basis for such sound management practices.
Restoration Forestry

Maser's answer to the problems he perceives with sustainability is to restore the forest to its original condition. He suggests maintaining some of the original, unmanaged stands and including an "old-growth" rotation in management cycles, as we might use different species in crop rotation systems. He refers to "liquidating" the natural forest as though all old-growth will be cut, and makes no mention of the extensive old-growth forests permanently set aside in research natural areas, wilderness areas, and national parks. Nor does he mention the substantial areas of public land that are already being managed on long rotations (150 + years) for the express purpose of developing old-growth conditions for wildlife habitat, esthetics, and other forest values.

Moreover, the ideas presented are restricted and simplistic compared to the broad range of objectives and management practices being discussed and applied in the Pacific Northwest and elsewhere. For example, many forest managers are purposely including snags, hardwood groups, and large woody debris in intensively managed stands. These structural characteristics of old-growth forests appear to provide important habitat components for some wildlife species. Further, retaining coarse woody debris may help sustain or enhance soil productivity (Harvey et al. 1987).

Conclusions

The premise underlying much of Maser's philosophy is that forest ecosystems function through precariously balanced interdependencies, where alteration leads inexorably downward. Forest ecosystems, however, contain much functional duplication and have many compensatory interactions. Centuries of experience and scientific investigation in moist temperate forests seem to provide far more support for a premise of forest resilience to disturbances associated with current management than for Maser's philosophy of extreme fragility.

The Redesigned Forest speaks to values and philosophies of forest management. But its scientific credibility suffers from inaccurate and selectively chosen information as well as illogical speculation. It therefore does little to foster accurate understanding of existing and proposed options for biodiversity, wildlife habitat, site productivity, and other resource considerations.

If the book has value, it is that it documents some of the philosophical views and misconceptions that have become part of the current controversy. Reading the book will alert forest managers, scientists, and others concerned with the forest environment to the nature and magnitude of the misinformation. We urge informed readers to take a more active part in overcoming this problem.

Literature Cited


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