MODERN FOREST MANAGEMENT—DON’T THROW THE BABY OUT WITH THE BATHWATER!


When discussing forest management and considering different ways to achieve a desired result, we still hear “We do forestry this way because it’s the way we’ve always done it. It’s what the industry demands.” This is regrettable both because we know so much more now than we used to about how forests grow and function, and because market demands change with increasing frequency. Today’s hot species may hardly be used tomorrow and the current trash tree may be quite valuable next year. Although there is no need to throw the baby out with the bathwater, it sure makes sense to take a second look at how and why we do what we do, using up-to-date tools and research results.

A new book by Tappeiner, Maguire, and Harrington, *Silviculture and Ecology of Western U.S. Forests* presents the fundamentals of silviculture within the framework of our expanded forest ecology knowledge base for modern forest management in the 21st century. They don’t throw the baby out with the bathwater: they provide a summary of 40 years of research within the context of proven silvicultural activities. The authors present valuable information for contemporary forest management, focusing on the western United States, without getting bogged down in the semantics of creating new words for sound, fundamental concepts and principles.

Although definitions of silviculture have changed over the decades, the fundamental activity has remained the same: we manipulate forest stand attributes, such as light and water availability, within the context of our knowledge of tree species autecology, i.e. silvics, in anticipation of a particular result.

Chapter One—Silviculture, presents an excellent summary of the evolution of silviculture theory and practice, noting in particular that silviculture now regularly includes ecological objectives along with watershed protection and timber production.

Chapter Two—Silvicultural Systems, provides a good presentation of differences among the three broad silviculture systems (even-aged, two-aged, and multigated) using regeneration, forest types, stand density control, wildlife habitat, fires, and forest operations as subheadings for further discussion. The authors take care to note that stands must be monitored, by tree species and beginning not long after initial treatment, to determine whether actual results match those intended.

Chapter Three—Some Ecological Principles Basic to Silviculture, and Chapter Four—Ecology of Shrubs and Hardwoods, are excellent additions to a silviculture text. The authors explain the link between a relatively new forest management tool, ecological classification of forest stands, and a well-established tool, site index. However, they do not go far enough in describing the advantages of using ecological classification systems, at least as we know them in Minnesota, Wisconsin, and Michigan, compared to site index, to guide forest management decision-making.

Chapter Five—Growth of Forest Trees and Stands, and Chapter Six—Measures of Stand Density and Structure, include brief mention of tree biomechanics, wood strength, and wood density along with an extensive collection of formulas for different stand density measurements. Describing site productivity is presented as being more accurate, and therefore more useful, when localized information on soil characteristics and water availability is used. The authors suggest that height growth curves may soon become more site specific to improve estimates of productivity.

Chapter Seven—Density Management and Fertilization, includes discussion of the effects of density management and fertilization activities on ecological factors such as microclimate, understory tree and shrub development, wildlife, insects, and pathogens.

Chapter Eight—Fire and Silviculture, offers a thoughtful presentation of the complexity of fire and forest management within today’s social–political–ecological–economic agenda.

Chapter Nine—Regeneration of Forests, provides valuable summaries of research on both natural and artificial regeneration, including attention to advanced regeneration. The authors point out the importance of maintaining native genetic diversity and limiting long-term negative impacts on vegetation.

Chapter Ten—Case Histories, is an excellent conclusion to the book—case studies are where the rubber hits the road. The authors present a sightseeing reality check that takes silviculture theory into practice.

The questions at the end of each chapter are a worthwhile exercise for students and professionals alike to review and to assess comprehension of key ideas. A detraction of this book is the typographical errors sprinkled throughout the text. Though minor, they distracted me while reading. I also found the paragraphs too long and could have benefited from additional headings to more easily identify the authors’ key points. And, unfortunately, I found many of the figures difficult to interpret because the text is so small.

I consider this book best suited to graduate students, practicing foresters, and silviculturists, and others with an advanced understanding of forest management and silviculture. And though focused on the western United States, I found much to inform my understanding of Great Lakes forest management.

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