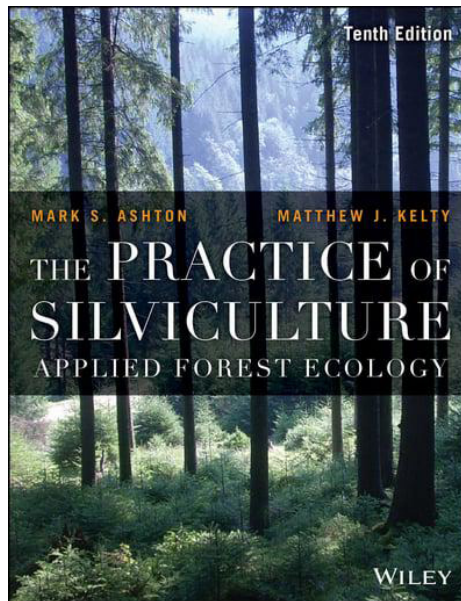


The Practice of Silviculture: Applied Forest Ecology

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Currently, there is significant public debate about trees and forests. Climate change has been proclaimed an international emergency and tree planting is being promoted as one of the most attractive solutions. Politicians of all colours, stripes and nationalities have been falling over themselves to tout the number of trees they plan to plant, and initiatives such as the one trillion trees movement, coordinated by the World Economic Forum, are creating impact at the international policy level. However, the dialogue around tree planting refers to only one aspect of silviculture.

The uncomfortable truth for foresters is that silviculture is not a term in common language or usage. It is in many ways a Cinderella discipline, often overshadowed in university and government departments by ecology, environmental sciences, and natural heritage conservation. Given the scale of the changes required and the potential for forestry to serve as a solution, one could argue that silviculture is now one of the most relevant fields of our time.

For any discipline to have standing there needs to be an active programme of research, a body of literature and textbooks to synthesise the science and practice. In

this regard, the 10th edition of *The Practice of Silviculture: Applied Forest Ecology* is both vital and timely. Building on the legacy of previous editions, this latest incarnation is greatly expanded, modernised and re-structured in line with current demands for course textbooks.

In terms of the structure, the book is primarily composed as a series of building blocks, taking the reader from definitions and principles to applications and wider considerations. The introduction reviews the history and philosophy of silviculture and outlines its place in managing current forests and woodlands. Especially important are the six principles that govern the scope and application of silviculture. These include: imitating nature through silviculture; conservation of site productivity; control of stand structure and process; control of composition; control of stand density; and, control of rotation length. In the second part, the ecological foundations of silviculture are introduced, with an overview of ecological site classification, forest stand dynamics and the ecology of regeneration. The primacy of the forest stand as a management unit, and the link between the stand and landscape-scale planning are also addressed, helping to set out a framework for much of what follows.

The third part of the textbook focuses on methods of regeneration, introducing the major silvicultural systems, which are categorised as the clearcutting, seed-tree, shelterwood, irregular seed-tree and shelterwood, coppice, and selection methods. Each is described through the lens of natural regeneration of forest stands with the vast majority of examples drawn from North American scientific literature and forestry practice. Artificial regeneration practices are addressed separately, where some detail is provided on tree selection, genetic improvement and nursery practices.

The fourth section focuses on “post-establishment (intermediate) treatments”, including tree growth in forest stands, changes in wood properties, and production. Post-establishment tools such as applications of herbicides, insecticides, fertilisers and prescribed burning are explained in detail. There are chapters on pruning, stand release from competition, and thinning. The thinning chapter outlines a range of options that would normally not be considered in Ireland, where low thinning is the standard approach. However, the emphasis is on biological and silvicultural matters; only in a very short section does the discourse focus explicitly on the economic aspects of thinning and yield.

In the final two sections we see the most significant developments from earlier editions of *The Practice of Silviculture*. Here the contemporary relevance of silviculture is made apparent. Promoting the wider values and purposes of forests, there are chapters on the role of silviculture in forest conservation, wildlife habitat, rehabilitation, and reclamation. Chapters on forest health and forest carbon in changing climates serve as brief overviews of topics that have global significance. Finally, there is reference to silviculture in the context of different land uses such as

multi-functional public forests, watersheds, timber production, agroforestry and urban forestry.

The book draws on an impressive body of literature, including many of the classic earlier publications as well as the latest research. Although there are examples from around the world, reflecting the experience of both authors, it is firmly rooted in the science and practice of forestry in the United States. From a European perspective, there are differences in emphasis that perhaps merit more comment. For example, the growing importance of close-to-nature forest management and continuous cover forestry are associated with major shifts in our thinking over the past 20-30 years. Moreover, what is considered a sustainable silvicultural practice in one jurisdiction may be politically unacceptable in another. Clearcutting, for example, is the standard regeneration method in many regions, but is barred elsewhere. In this regard, the interface between silviculturists and wider society could be given greater attention. Nonetheless, the book is unsurpassed in its comprehensive description of the major systems and practices. Furthermore, there is an attempt to promote a consistent terminology, as promulgated by the Society of American Foresters Silviculture Instructors Sub-Group (1994) and the Commonwealth Forestry Bureau (Ford-Robertson 1978).

Compared with the previous edition, the production quality is a step forward. Richly illustrated with diagrams and figures, there are also many colour images. Silviculture is a subject that calls out for visual and graphical explanations. There are also many small boxed items that present case-studies, drawing on the authors' experience during travel and research around the world. It is attractive and almost infinitely interesting to delve into this book; students will certainly find this an essential resource for term papers and references on the broad spectrum of silviculture topics.

Overall, *The Practice of Silviculture: Applied Forest Ecology* is an impressive publication and the authors are to be congratulated on this major contribution to forestry literature. It keeps the discipline of silviculture fresh and alive, and presents much relevant and new information in tune with current drivers for sustainable forestry. Clearly the target audience will be students, researchers and practitioners of silviculture and forest conservation. It would also be a useful reference for anyone working in forest ecology, landscape management and natural resources management.

Every forester knows that tree planting is the start of a long journey. Foresters think in terms of decades, and longer, when it comes to planning, establishing and managing woodland. The maxim that foresters and policy experts like to apply is "the right tree, in the right place, for the right reason". *The Practice of Silviculture: Applied Forest Ecology*, more than any other textbook I have encountered in forestry literature, re-enforces the diverse range of options, challenges and opportunities associated with the long-term management of forest ecosystems. It suggests a new mantra for our

times, where resilience and adaptation are central to silvicultural thinking: the right genes, of the right species, adopting the right system, on the right site and for the right reasons. For any student of silviculture, this magnificent new edition sets out the principles of forest stand and landscape management, and refreshes our framework of understanding. It inspires hope in our ability, as foresters, to tackle the many social and environmental challenges ahead.

References

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