

in river management, we must at all costs make sure that the next generation starts its journey with a truly integrated perspective from the outset.

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A Critique of Silviculture. Managing for Complexity

BY KLAUS J. PUETTMANN, K. DAVID COATES AND CHRISTIAN MESSIER

xvi + 188 pp., 14 figs, 4 tables, 23 × 15 × 1 cm, ISBN 978 1 59726 146 3 paperback, US\$ 30.00/GB£ 26.50, Washington, DC, USA: Island Press, 2008

According to the authors of this book, the discipline of silviculture appears to be at a crossroads. They undertake a critical analysis of this academic subject area in the light of recent paradigm shifts. The analysis starts off with the historical context of silviculture and then challenges basic silvicultural assumptions and approaches. This is followed by contrasting the principles of ecology with those of silviculture. In conclusion, the authors propose a new conceptual framework for silviculture that involves an improved understanding of ecological complexity and of complex systems.

The book is intended for both academic and practical readerships in the area of forestry, ecology and landscape management. It is a useful text for professionals, as well as students with a basic understanding of silviculture and ecology. It is a topical book which should appeal to anyone with an interest in forest ecosystems and their management. Various definitions inserted in boxes in the main text, as well as a glossary of terms and an index offer easy access to beginners among the readership.

The book material is well researched and organized. All statements of fact are accurate. Particularly laudable is the attempt to research the complex German origins of silviculture, including terms in the German language, which clearly highlights the authors' efforts and their commitment.

Analysing the discipline of silviculture in relation to ecology and complexity science is a very effective and stimulating way of facilitating thinking beyond traditional disciplinary boundaries; it helps to involve new ideas and findings in ecology and complexity science.

However, I tend to disagree with the view that silvicultural systems are larger programmes of activities that define all aspects of management throughout the lifetime of a forest (pages 23 and 42). In my view and that many other authors, silvicultural systems with only one notable exception are rough concepts describing how the main forest canopy must be manipulated to achieve natural regeneration of trees. Once this is achieved, the silvicultural system has come to an end and any further management of the emerging new tree cohorts is subject to a sequence of interventions which have no relation to silvicultural systems. This is why many textbook authors have decided to use the term regeneration systems instead.

There is also a slight misunderstanding with the German term *Femelschlag* on page 32. *Femelschlag* corresponds to the English term

group system and not to an irregular shelterwood system. On page 33, the authors refer to *Badischer Femelschlag* and it is this variant of the *Femelschlag* systems which best reflects the English term 'irregular shelterwood system'.

All arguments are clear and logically presented. The conclusions and proposals of the last chapter are stimulating and give useful indications for future directions in silviculture. However, some of the proposals, for example accepting and modelling uncertainty and the stochastic nature of the forest ecosystem, are well perceived in the scientific community and are being followed up by mixed modelling approaches and other concepts. It is worth noting that some of the practical recommendations for adaptive management are already in use in a number of European countries.

The book layout has been carefully designed. Presenting essential definitions in boxes on every page is a good idea. Figures and tables are clear and support statements made in the text. The references are extensive and up-to-date. The index and particularly the glossary of terms are extremely useful.

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Paradise Found. Nature in America at the Time of Discovery

BY STEVE NICHOLLS

x + 524 pp., 23.5 × 16 × 3 cm, ISBN 978 0 226 58340 2 hardback, US\$ 30.00, Chicago, USA: University of Chicago Press, 2009

Satan, approaching Paradise in *Paradise Lost*, is bent on conquest. Yet he notices that this land offers much that his domain does not, rows of 'goodliest trees, loaden with fairest fruit', being enjoyed by the original humans in 'simplicity and spotless innocence.' In fact, Satan is so impressed with the beauty of Paradise and its inhabitants that he feels a twinge of regret before 'honor and empire' goad him into 'conquering this new world' (J. Milton, *Paradise Lost*, Book IV, lines 146–394).

While Milton was composing his epic, other Europeans were out conquering other new worlds, often writing lavishly about the natural wonders that they encountered. Steve Nicholls draws on these accounts in *Paradise Found*, an environmental history of North America that covers more than 500 years in as many pages. The chapters present variations on the following theme: once, plants and animals existed in tremendous abundance, being harvested more-or-less sustainably by clever Indians. European explorers visited and wrote breathless superlative-choked letters about how amazing it all was. Then colonists arrived and initiated processes that would ruin Paradise and degrade its inhabitants, every bit as efficiently as Milton's Satan, but not half as conflicted. Much later, dimly comprehending what had been lost, governments implemented conservation measures that, while better than nothing, could only salvage a shadow of nature's former glory. To Nicholls, North American ecosystems are brilliant tapestries that have been left in the sun to bleach and unravel: entire threads have been lost, and those that remain are faded and frayed.