

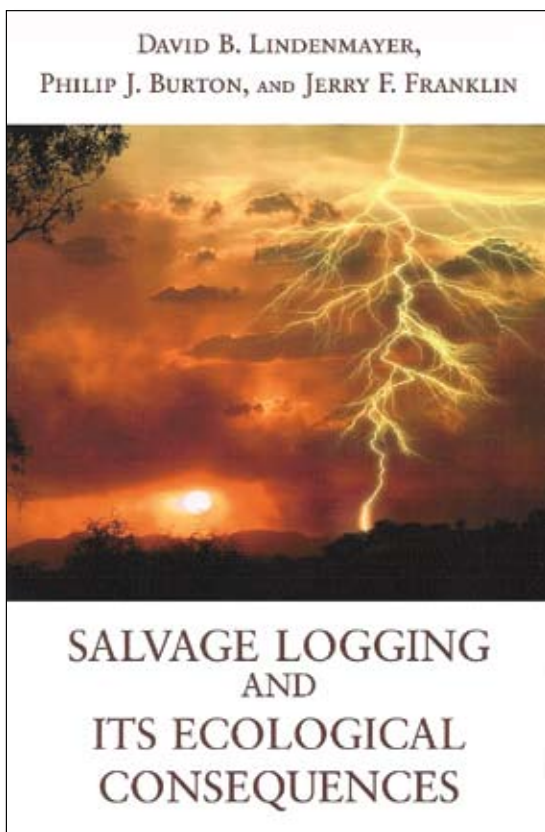


Book explores salvage logging

by Phil Burton, Canadian Forest Service & University of Northern British Columbia

A new book, *Salvage Logging and its Ecological Consequences*, is providing a snapshot of information and lessons learned from around the world when salvaging timber after natural disturbances.

The impetus for the book began indirectly in 2003, when the BC Ministry of Forests and Range designated large “salvage” zones as Emergency Bark Beetle Management Units in 2003 (see http://www.for.gov.bc.ca/hfp/mountain_pine_beetle/maps/ebbma/20030801.pdf).



Over the following year, by coincidence, a number of research papers (e.g., Karr *et al.* 2004, Lindenmayer *et al.* 2004) documented the impacts of timber harvesting after natural disturbances such as forest fires. Seeing parallels to the impending “salvage uplifts” to allowable harvest levels in the wake of the mountain pine beetle (MPB), I nominated **Dr. James R. Karr** (University of Washington) and **Dr. David B. Lindenmayer** (Australian National University) to be featured speakers in the Forest Science Lecture and Doug Little Memorial Lecture series at the University of Northern British Columbia in 2005. Following some field tours of harvesting operations and further

discussions over beer and around campfires, David Lindenmayer and I agreed that there was a need to consider the impacts of salvage logging from multiple dimensions, and to compile the already extensive literature on this topic.

This book (Lindenmayer *et al.* 2008) emerged more than two years later. Released by Island Press (a non-profit publisher based in Washington, DC) in July 2008, this short (227-page) volume synthesizes the information and lessons learned from over 500 published sources. Organized in six chapters, the book addresses the opportunities and challenges

associated with salvage logging, provides a unified framework for the description of disturbances (natural and anthropogenic) in forest ecosystems, reviews the effects of salvage logging on ecological phenomena, explores several case studies of salvage programs after major natural disasters, and suggests techniques and considerations to reduce the ecological impacts of salvage logging in the context of sustainable forest management. Over the course of developing this package of review and analysis, we brought **Dr. Jerry F. Franklin** (University of Washington) onto the project to provide case studies from the northwestern US and to more fully develop the theme of biological legacies and their importance to the resilience of ecosystems after disturbance.

There can be many reasons to undertake salvage logging operations, but all depend on context and land-use objectives. Salvage operations are frequently needed to clean up recreational parks, suburbs, and roadsides (e.g., after windstorms), if only to remove danger trees and obstructions caused by fallen trees. In forests managed commercially for wood production, the imperative is typically to salvage as much raw material as possible before it deteriorates because of fungi and wood-boring insects. However, on multiple-use lands, which constitute the bulk of public forests in many countries, consideration also needs to be given to the habitat value of naturally disturbed forests and to the attributes of early seral stages that follow. In many regions, it has now become difficult to find extensive habitats dominated by charred snags and burned forest floors; hence the specialist plants, insects, and birds dependent on such habitats can be missing from large areas.

Salvage logging also affects ecosystem processes such as hydrological regulation and carbon sequestration. Following on the heels of natural disturbances, clearcut logging (the dominant harvesting system employed for both “green” and salvage logging in much of the world) may further stress an ecosystem by removing critical canopy cover, vertical structure, and ground cover. This second, un-natural disturbance can thus deliver a “double hit” to an ecosystem that may have been resilient to natural disturbance or timber harvesting, but not to both in rapid succession.

The book provides in-depth analysis of several case studies of salvage logging, including the policies and practices following outbreaks of the MPB in BC

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References

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The book, *Salvage Logging and its Ecological Consequences*, is available in hardcover and paperback versions from your local bookseller, from on-line order houses, through UBC Press (<http://www.ubcpress.ca>) in Canada, or directly from Island Press (<http://www.islandpress.org>) in the US.

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Book provides in-depth case study analyses

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and the hemlock woolly adelgid in New England. Salvage impacts after forest fires are examined for cases in Quebec, the western US, and Australia. Post-hurricane salvage impacts in the southeastern and northeastern US are reviewed, along with those associated with salvage operations after the Mount St. Helens volcanic eruption in Washington state. The keys to minimizing the negative effects of salvage logging would seem to have three dominant themes:

- Plan for natural disturbances well in advance, with conscious efforts to minimize susceptibility to wind, fire, or insects.
- Avoid salvage operations where naturally disturbed forests are rare.
- Retain biological legacies (e.g., snags, logs, and

thickets of surviving vegetation) in densities and patterns similar to those found in naturally disturbed forests.

In the final chapter of this book, we emphasize the inevitability of natural disturbances: fires, storms, and insect outbreaks are bound to occur though we may not be able to predict when or where. Certain forest management activities and landscape configurations might be implemented to avoid or minimize the impacts of these natural disturbances. But it is also reasonable to include well-developed provisions (contingency plans) for dealing with natural disturbances, including the “where” and “how” of salvage logging, in all forest management and stewardship plans. In other words, it is possible to avoid, or at least minimize, the negative impacts of salvage logging. 🌲