

Chapter 26

Old Growth in a New World: A Synthesis

SALLY L. DUNCAN, DENISE LACH, AND THOMAS A. SPIES

between natural and human systems. The
ize were selected to represent experts from
conomic sciences. While our selection pro-
imation of a thematic structure (e.g., eco-
gement), the final organization and themes
ve studied the chapters and discovered the
es among them. But we wanted more than
al and social scientists—we also wanted
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ludes with a call for a new way of thinking
amics and variation in both ecological and

VI—and of the book—we (Spies, Duncan,
take this integrated approach to thinking
further and propose some strategies for
icon to a deeper foundation for forest con-
est. We summarize some of the problems
how management and our concepts might
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se lines will put us in a better position to
ome.

During the old-growth wars of the late twentieth century, a multitude of voices protested, planned, persuaded, and preached around this divisive issue. Although it seemed then that only two ideas prevailed—trees were for cutting or trees were for saving—the passing of time has allowed complexities and details to be teased out of the various perspectives, rendering considerably more nuanced ideas about old growth. Our body of knowledge about old-growth forests continues to expand, and our understanding of how we as individuals and as a society relate to them continues to evolve.

This book introduces the idea that one of the lasting products of the old-growth wars is the politically untouchable icon of big, old trees. The icon had the short-term effect of hardening the outlines of what many people conceive of as old-growth forests and creating a glare that made it difficult to see important complexities and subtleties of meaning central to the bigger problem of conserving forest biodiversity in a socially sustainable manner. It also had the effect of binding us to some principles of conservation that have arguably backed us into a tight corner when it comes to taking actions in the forest to restore and maintain biological diversity and human connections to the land. Although most of the authors in this book did not directly address the notion of old-growth forests as icon, all responded to

these consequences of the “iconization” of old growth. Questions continue to swirl around old-growth forests. We wonder if these questions represent a much larger twenty-first-century struggle to understand the tangled and messy connection between ourselves and our environment.

Three overriding themes emerge from the twenty-four invited chapters:

- Old-growth forests achieved their status as icon through a convergence of scientific complexity and spiritual mystery.
- Unlike the static view of old-growth forests as “complete,” these forests continually manifest both ecological and social change.
- Issues related to old-growth forests reflect social values and how they play out in a context of science, economics, and politics.

Our changing understanding of these themes, especially the increased understanding of environmental complexity, suggests a twenty-first-century renaissance in the way we might manage old-growth forests. This chapter will first synthesize the findings of the authors and then consider some of the ideas that were not mentioned.

Complexity Meets Mystery

Old-growth forests achieved their status as icons—objects of uncritical devotion—through the convergence of our increasing scientific understanding of complex systems with the sense of awe and mystery many already feel in the presence of big, old trees. Scientists increasingly view old growth as a manifestation of complex systems, one that challenges the way we traditionally practice and think about science and forestry. Instead of trying to understand all the “parts” of old-growth forests—species and vegetation types, for example—in the hope that the sum of those parts will tell us about the whole that is the forest, scientists are recognizing the importance of scale, time, and space as dynamic variables that affect how we perceive the forest. And, as in most complex systems, forests have emergent properties—structure, functions, and habitats—that are not predictable across scales because of the particular relationships among the parts, processes, and context. To scientists, old-growth forests represent the myriad intricacies and diversity of ecosystems.

Although old trees are a necessary component of diversity, they are only one part of the web that is the forest and are not sufficient by them-

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sary component of diversity, they are not just old-growth forests and are not sufficient by them-

selves. New scholarship reinforces the importance of each successional stage, not just old growth, in the life of the forest. The idea of abandoning the exclusive focus on old growth as a stage in forest development emerged strongly from several of our chapters. Indeed, in the view of many authors, simplifying forest types in any fashion serves to endanger complexity, and thus, by default, to endanger biodiversity, which appears to depend more on forest complexity than it does on forest age. And complexity, as it is now better understood, ought precisely to be the most cherished aspect of any forest not managed for exclusive industrial use. Multiage management and intentionally managing forests to contribute to complexity are complemented by recognition of the importance of the natural young forests that have been as dramatically reduced across the Pacific Northwest landscape as old growth—another example of the danger in simplifying forest types. These forests make crucial contributions to regional biodiversity that are as critical as those from old growth.

Each old-growth forest also has what we might call a *vintage*—a term borrowed from the wine industry that reflects not just a time when it was born or came of age but also a place. No two old-growth forests will ever be exactly the same because each developed through a unique environment and history. To complicate factors even more, we are also starting to see a change in the rates and patterns of change itself as humans speed up (e.g., rates of disturbance) or truncate (e.g., fire frequencies, invasive species) processes critical to forest development. Scientists are wondering which, if any, characteristics of old growth are invariable across place and time. Structural complexity or "messiness" may be the best distinction between old and young, managed and unmanaged forests that we can devise at this time.

The excitement generated as scientists increase understanding of complex forests is matched by a sense of wonder that many nonscientists feel when entering a grove of old-growth trees. To nonscientists, the complexity of old-growth forests can represent a refuge for the imagination in a materialistic world where everything is counted and accounted for. Even the language used to talk about old trees—*ancient*, *cathedral*, *old growth*—reflects a traditional, mythic understanding of the world that holds respect for elders and their experience-based knowledge. As Moore reminds us in her chapter,

Old-growth forests are old. At least in the Pacific Northwest, they are tall. They are complex. They are unspoiled. They are quiet. They are beautiful. They are all of these at once. These are their sources of spiritual value.

We wonder what those trees, some standing since before Columbus crossed the Atlantic, have seen over the centuries. If they could speak, what would they tell us about our history and our future as users of the forest?

At the height of the old-growth wars, early scientific understanding of the complexity of forests converged with the spiritual and aesthetic understanding of the place that forests hold in our history, imagination, and culture to create an icon of old-growth trees as something special to be protected at all costs. If old-growth forests are effectively irreplaceable, as many believe, should we not protect them now and into the near future? And, until science could give us a better explanation of how forests actually worked, putting old-growth forests into reserves that protected them from human encroachment seemed a reasonable approach. Ultimately, however, the iconic status of old growth could not protect forests from ecological change or evolving social values.

Change Is Now and Forever

A strong component of old growth as icon is the notion of constancy—once an old-growth forest, always an old-growth forest—ignoring the realities of both ecological and social dynamics. Yet the importance of change was a substantial element of almost every chapter and surfaced as a key theme for the book. The dynamic nature of forests has emerged as one of the most compelling new perspectives of ongoing ecosystem research during the past three decades.

As noted by many authors, the primacy of the idea of a “climax” forest has run its course, and the concept is now frequently used as an illustration of how far we have traveled from earlier understanding of forests as staged and ordered. The static idea of a “climax” old-growth state was misleading in several respects and can be discerned behind the ecological and social consequences of policies such as “multiple use,” continuous harvest, and even the more recently imposed old-growth reserves of the Northwest Forest Plan.

If we are convinced that old growth is a final “stage” in a linear sequence of forest development, we can comfortably lock up that specific group of trees for protection and move on. If, instead, we think that old-growth characteristics typically occur in a web of change in which the forest moves forward, backward, sideways, and inside out in response to disturbance and ecological development, we need to find new ways to manage the forest and also ways to understand change itself.

some standing since before Columbus crossed the centuries. If they could speak, what would they say about our future as users of the forest? The old-growth wars, early scientific understanding of forests, converged with the spiritual and aesthetic values that forests hold in our history, imagination, and sense of old-growth trees as something special to be protected. Old-growth forests are effectively irreplaceable, as we must protect them now and into the near future? This is a better explanation of how forests actually were turned into reserves that protected them from logging a reasonable approach. Ultimately, however, reserves could not protect forests from ecological changes.

Is Now and Forever

Old-growth as icon is the notion of constancy—once an old-growth forest—ignoring the realities of change and dynamics. Yet the importance of change was a theme in every chapter and surfaced as a key theme in the nature of forests has emerged as one of the central themes of ongoing ecosystem research during the past century.

First, the primacy of the idea of a “climax” forest concept is now frequently used as an illustration of an earlier understanding of forests as staged succession. A “climax” old-growth state was misleadingly discerned behind the ecological and social complexity of forests as “multiple use,” continuous harvest, and old-growth reserves of the Northwest Forest Reserve.

Old-growth is a final “stage” in a linear sequence of forest development that comfortably lock up that specific group of forests. If, instead, we think that old-growth is part of a web of change in which the forest moves in and out in response to disturbance and we need to find new ways to manage the forest landscape itself.

Several of the chapters point out that active management is needed to restore old-growth diversity in many cases; solving the issues of forest conservation and restoration cannot be addressed through isolation and preservation of a single stage of the forest. When we reframe the issue as encompassing multiple stages and types of forests, it is more apparent that forest conservation is something to which all landowners can contribute. Young, managed stands can be manipulated in ways that enhance the biodiversity of elements that are often characterized as old growth (e.g., species distributions, vegetation types).

Politics, economics, and cultural conditions, interacting with each other and the environment in various combinations, have also changed over the past thirty years, creating an equally strong dynamic affecting what we expect from forests. And, as noted by many authors, resistance to change has informed most environmental action, and the conflict over old growth is no exception. Ironically, this observation explains both the industry and the environmentalist positions: Industry supporters did not want to see their economic circumstances change in the drastic ways they anticipated, and environmental supporters did not want to see the timeless symbols of the region changed beyond recognition through continued clearcutting of old trees.

One outcome of the old-growth wars, courtesy of the Northwest Forest Plan, was to develop Adaptive Management Areas, where this wicked problem was to be taken on incrementally, in a learn-as-you-go mode. However, this experiment to manage continuous ecological and social change has not lived up to its promise. To date, AMAs have foundered on the risk-averse orientation of stakeholders, including many managers, environmentalists, and regulatory agency personnel. Challenges to the status quo, even ones that attempt to apply place-specific learning, are rebuffed through delay, denial, and outright hostility to new suggestions. This phenomenon is not unique to the forestry realm but rather one of the negative consequences of formalizing and institutionalizing practices that for the most part do help in getting work done efficiently and effectively.

Even as the old-growth wars heated up, technological changes were already playing a part in new approaches to forest management and were symptoms themselves of ongoing social change whose effects are just as far-reaching as those of large wildfires, regionwide insect outbreaks, or a new set of reserves in the affected ecosystems. The move by the end of the 1980s to an “agricultural model” of private forests (e.g., improved genetics, fertilization, density optimization) produced trees that could be processed by new and highly efficient mills that used second-growth timber grown on private

lands to produce uniform logs for emerging markets. Thus, a complicated combination of private land management and mill ownership patterns, plus federal rules prohibiting export of federal logs, had created a thriving wood processing industry that depended on the larger older logs from federal land. When the federal timber supply dried up at the end of the old-growth wars, many mills without access to private timber were unable to retool quickly enough to compete for private timber. The Northwest economy as a whole grew strongly during this period, but as the older mills closed, some rural communities went into economic and social tailspins as they grappled with declining jobs, populations, and economic opportunities.

Social Values, Institutional Values, Whose Values?

The strong role of science in the old-growth debate gives the impression that this is a scientific problem, perhaps crossed with economics. Ultimately, the authors tell us, the old-growth wars were not about scientific advances or specific stands of trees. They were about values and the complicated humans who hold those values. In many ways, the social resonance of old-growth forests reflects the need humans have for experiences that take us beyond our immediate materialistic world. This moves us into the realm of spiritual values, which only amplifies the force of the old-growth icon in social debates.

It is not difficult to imagine that the future of old growth will remain dependent on social factors, not scientific or technological ones. Forests in general, and perhaps old growth in particular, have long been defining factors in the sense of place of the Pacific Northwest, for both rural and urban inhabitants of the region. And therein lies the rub. Forests are valued differently by people who earn their living through forests and their products, people who reside near them, and people who live in removed or even distant urban settings. As environmental values extended their reach into both urban and rural communities, many Americans were first learning about public forests through the lens of the old-growth icon.

The idea that people with different values could have a say in the fate of federal forests generated a great deal of anger among both rural and urban residents. Rural communities had become accustomed to living on the revenues provided by nearby national forests and resented those who wanted to "lock up" the forests for nonutilitarian purposes and what were often viewed as personal reasons. Urban environmentalists tended to characterize rural residents as exploiters of the common good and despoilers of the "last

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that the future of old growth will remain scientific or technological ones. Forests in particular, have long been defining facets of the Pacific Northwest, for both rural and urban areas. Herein lies the rub. Forests are valued differently for living through forests and their products, and for people who live in removed or even distant places. The values extended their reach into both rural and urban areas. Many Americans were first learning about the old-growth icon.

Different values could have a say in the fate of old-growth. A deal of anger among both rural and urban areas had become accustomed to living on the revenue from old-growth forests and resented those who wanted to use them for utilitarian purposes and what were often the environmentalists tended to characterize as common good and despoilers of the "last

great places." These polarized positions contributed to and were modified by the growing general public expectation that federal lands could provide values other than timber. As a consequence of the public shift in preferences for noncommodity use of national forests (e.g., habitat protection, recreation, aesthetics), the stability rural communities had realized through reliable federal timber harvests disappeared and is proving difficult to replace in many locations.

New methods for valuation of old growth and other natural resources are starting to emerge to address peoples' different views of both commodity and noncommodity forest products and services. As our authors suggest, any revaluation should reflect the mystery and enchantment that many people feel in the presence of old trees if it is to reflect the full range of individual and social responses to old growth.

The old-growth turmoil of the last decades of the twentieth century is a symbol of large changes in our scientific and social understanding of the world. Considerable agreement exists among our authors that old growth as an icon was solidified through changing ecological understanding of the complex forests that many viewed with awe approaching the religious. Changing technology as well as political alignments exacerbated the social change driving a reassessment of the value of forests for many who neither lived near nor were reliant on forests for revenues. The cross-cutting issues identified by these authors provide a thoughtful examination of the current state of our understanding of old-growth forests. Several issues, however, were either only briefly discussed or not mentioned at all and are worthy of consideration.

Emerging Issues

Among the core drivers of landscape change, increasing human population in the Pacific Northwest and the very nature of human behavior must surely be considered key to the likely future of most natural resource management. Whether growing cities and increasingly urbanized rural areas lead to a vast encroachment on resource lands, including forests of all kinds, or a more intense focus on the high value of remaining old-growth stands, the point is that old-growth forests will be affected either way. Population growth *will* have an impact on how and whether we manage these forests, and we would be foolhardy to imagine otherwise. Furthermore, we should not be ignoring the forces that affect public policy; individual and collective human decisions—typically acquisitive rather than conservative—tell us more

about the future of old growth than any polls supporting or opposing their preservation. Changes in land use, changes in climate, changes in population, and changes in values all get writ large upon the landscape.

The old-growth debate was conducted in some quite novel ways and forums, testing new ideas and bringing into question the potential for managing future natural resource issues. The power of new knowledge communities—interest groups that formed around either the whole old-growth issue or local pieces of it—has been growing during the past three decades. A great many factors contributed to this. Social ones include changes in values, strengthening senses of place, shifts in financial resources available to nonprofits at the national level, and new skills in issue identification and litigation. Technological factors include the spread of the Internet and all its communication capacities, new capabilities such as geographic information systems, and data mining contributing to new knowledge. The rise of small activist/collaborative groups and their ability to network via the Internet to know they are not alone, to build community and momentum, and to coalesce to form tangible political power suggest that they are becoming a force—albeit little recognized—driving significant social change. They will certainly be a continuing part of the old-growth issue, and the fact that some of them do not necessarily last very long is simply part of their narrative. Their mere existence raises questions about current and future knowledge management, its meaning for democracy, and its role in any twenty-first century decision- and policymaking.

The challenge of managing forests across ownership boundaries also has a quiet but powerful role to play in how we think about conserving native forest diversity, including old growth. A recent change in tax law, for example, has shifted thousands of acres of former industrial timber lands into the portfolios of private equity firms and related entities. How will the management intentions of such entities affect the trajectory of forest development across the larger landscape? How long these lands stay forested is more frequently a decision based on return on investment than on ecology. Policies for mitigating climate change are turning attention to the value of forests as carbon sinks, an ecosystem service that can be bought and sold in markets around the world. These issues help us remember that, in addressing social change, we tend to think in terms of economics, not ecosystems. We are as yet far from integrating those two large arenas in any meaningful way and certainly not in how they operate together or separately in the future and the management of old-growth ecosystems.

These, then, are some of the issues that swirl around the old-growth debate as it now stands, contributing a volatile mixture of complexity and

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further uncertainty to a dialogue that continues to energize some sectors of
the regional and national population every time it's mentioned. What the
future holds is unclear, but we do know that the multitude and reach of
events that have occurred since the environmental legislation of the 1970s
has led us into a deeply changed era. Can this convergence of ideas and
events be part of a larger renaissance in views about the environment and
our increasingly complicated relationship with it?

Reconceiving the Forest: A Twenty-First-Century Renaissance?

The old-growth crisis fomented vigorous argument and changed many of
the ways we understand forests. But the development of the old-growth
icon almost guaranteed the narrowing and hardening of arguments, chal-
lenging our ability to come to any kind of agreement on the future. One
example of such narrowing can be seen in demands to protect large swaths
of the federal forest regardless of their age, structure, or health. When an
icon becomes as powerful as old growth has, people can and will use it for
all sorts of purposes. The thirty years since the beginning of the old-growth
wars suggest that we could limp along without a policy fix for some time
yet. But does our collective indecision reflect a far more troubling inability
to think clearly about this and multiple future environmental tasks?

It does appear that we have many of the compass points required to
define a renaissance of ideas about forest management: a fundamental
upheaval in entrenched forest practices, a challenge to strong sets of exist-
ing scientific and social beliefs, a major shift in values both geographically
and socially, new social and political communities, and a recognition that
policy-making skills are not always up to the task. The old-growth wars
may just have been a jolt that emerged at a time of multiple small revolu-
tions, leaving us with the impression that they were the genesis of change,
when in fact they were merely one symptom. And if indeed they were a
symptom of fundamental change in how we think about environmental
conflict and management, then it will be important to consider what new
compass points we might follow for improving our orientation toward the
future of managing ecosystems.

Complicating any future efforts to find solutions for complex environ-
mental problems will be our ability to make decisions when complexity and
uncertainty increasingly refuse to dissolve with time. Pursuit of knowledge,
through the scientific method, as well as through less-formal or structured

means, will continue to generate numbers, ideas, and questions. Indeed, the growing masses of data may bury us under their sheer volume. If we're thoughtful about it, however, they can help more rigorously outline the scope of the questions we must address.

This is clearly the challenge with how to manage, or even think about, old-growth forests. For wicked problems such as how to conserve old growth and at what level, decision making is not typically rational. The most likely solutions will probably be "clumsy" attempts to cobble together policies that are acceptable to a wide range of constituents. Our ability to grapple with complex issues is poorly developed, and the classic fallback position of *symbolic politics*—more gesture than substance—has been shrewdly utilized in the old-growth management realm, a clear indication that it is too difficult to address directly.

But address it we must, for we are facing relentless social and environmental cycles that cannot be stared down. People will not abdicate their positions on old growth any time soon, and no matter how fervently some scientists may believe it, providing more scientific information will do little to change opinions. Furthermore, even supposing climate were a completely stable concept, the forests themselves will continue their cycles of change, established through millennia as the inevitable forces by which ecosystems evolve. If we add in whatever degree of climate change emerges in coming decades, a renaissance in how we think about forests will not only be likely, it will be essential. We need to think about forests as entities that change, *all* the time—at different rates, with no fixed ages or fixed structures. We need to think about social values that change, *all* the time, fluctuating around multiple and dynamic cultural, political, economic, and scientific ideas. We need to embrace the idea that science can provide us with many questions and many, although not all, answers. Science, however, cannot measure awe or mystery, and we are continuously reminded that it does not own all the measuring tools.

So we need not just to reconceive the forest as a dynamic and diverse system but to take our cue from what we have learned about old growth and reconceive forest management as a dynamic process that draws on multiple and often divergent knowledge, practices, and social expectations of natural resources. Changes in the way we think about both old growth and management have the potential to revitalize the role forests play as critical natural resources with the power to meet ecological, economic, and cultural needs of society. The challenge now is to move past the obsolete terms of the old-growth wars, prepared to embrace new and more demanding ways of thinking, and to explore untested approaches.

Old Growth in a New World

A PACIFIC NORTHWEST ICON REEXAMINED

EDITED BY

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Chapter 15, "In the Shadow of the Cedars: The Spiritual Values of Old-Growth Forests," by Kathleen Dean Moore, was previously published in *Conservation Biology* 21, no. 4: 1120–23. Reprinted with the permission of Wiley-Blackwell.

Old growth in a New World : a Pacific Northwest icon reexamined /
edited by Thomas A. Spies and Sally L. Duncan.
p. cm.

Includes bibliographical references and index.

ISBN-13: 978-1-59726-409-9 (cloth : alk. paper)

ISBN-10: 1-59726-409-1 (cloth : alk. paper)

ISBN-13: 978-1-59726-410-5 (pbk. : alk. paper)

ISBN-10: 1-59726-410-5 (pbk. : alk. paper)

1. Old growth forests—Northwest, Pacific. 2. Old growth forest conservation—Northwest, Pacific. 3. Old growth forest ecology—Northwest, Pacific.

I. Spies, Thomas A. (Thomas Allen) II. Duncan, Sally L.

SD387.O43O545 2008

333.75'1609795—dc22

2008008245

Printed on recycled, acid-free paper ♻️

Manufactured in the United States of America

10 9 8 7 6 5 4 3 2 1