

Chapter 1

Searching for Old Growth

THOMAS A. SPIES AND SALLY L. DUNCAN

ended consequences can generate ongoing

on and Swanson set the stage for a broad and national forest policies, each of which has viewed forests through time. They growth has not been constant, and it is vation of old growth has become a stated Forest Restoration Act). Despite its prior d growth has been central to the ecology, of the Pacific Northwest for centuries, of the region. Their chapter presents clear importance of old growth and the social ept. Thus, they also propose that society's ill continue to change in the future.

The flat, glacial outwash plain in northern lower Michigan is savannah-like and open to the sky, but it was not always so. Only scatterings of large, gray, rotted stumps remind me that old-growth eastern white pine, red pine, and hemlock forests flourished here for hundreds of years. In 1972, almost 100 years after intensive logging of the area ceased, I (Spies) visited the area and found no large pines or hemlocks, just shrubs and patches of big tooth aspen and scrub oak. The remarkably slow recovery of the vegetation is thought to be a result of extensive logging followed by repeated, hot logging-slash fires that burned off the organic matter from already nutrient-poor, sandy soils. These activities effectively eliminated seed sources of pines and hemlocks that had developed through millennia.

A few hours later, I stopped at Hartwick Pines State Park, seeking to get some idea of the appearance of that long-gone old pine forest. Here, in an area smaller than fifty acres (it was eighty-five acres until a windstorm in 1940 knocked down almost half of the old growth), stands a remnant patch of white pines more than 300 years old, more than 150 feet tall, with a lower canopy of hemlocks. The park gave me some sense of what many of the northern Michigan forests might have looked like before Europeans arrived. But this small patch—just a fifty-acre speck in the former pine forests—with its well-worn trails and surrounding cutover landscape, was not much more than a botanical garden or curiosity.

Nevertheless, I was intrigued by the idea that millions of acres of Michigan and other states in the eastern United States, and much earlier in Europe, had supported old-growth forests of pine and hardwood whose dimensions we know only from written accounts of early Euro-American explorers and notes of surveyors. Most of the details of these forests—their appearance, structure, plant and animal composition, and pattern on the landscape—are left to our imagination, which may be filled with images from romantic American landscape painters, or even Walt Disney. In many ways, these forests are unknown—to all of us, scientifically and socially.

I did not know then that ten years later I'd be standing in the middle of the eroded volcanic mountains of the Pacific Northwest, surrounded by a region that still actually contained millions of acres of forests with massive old conifer trees—some 750 years old and eight feet in diameter, with crowns that disappeared into the mist more than 200 feet above me (fig. 1.1). Not only that, I would be the scientist, hired by Dr. Jerry Franklin of the U.S. Forest Service, the world authority on old-growth forests, to study the diversity in structure and composition of old-growth forests and to determine how different they were from younger natural and managed forests. Furthermore, whether I liked it or not, I was about to receive a fast-paced education in the increasingly wicked combination of the ecology, the management, and the politics of old-growth Douglas-fir forests in the region.

I began my old-growth research with a strong sense that many of the older forests of the Pacific Northwest might experience the same terminal fate as those of Michigan and other parts of the eastern United States. This feeling had a number of sources, not the least of which was sharing the narrow gravel roads with heavily loaded log trucks. It was reinforced every time I would take a five-year-old aerial photo out to a site to check an old-growth stand and see instead a recent clearcut and plantation of Douglas-fir seedlings. When I told people that I was studying old-growth forests, a typical reaction was to ask, "Why are you studying old-growth forests when they are just going to cut them all down anyway?"

Indeed, in the early 1980s, "they"—the Forest Service and Bureau of Land Management—had no old-growth conservation policy. The only protected old forests were those that happened to be in wilderness areas, which were typically in low productivity forest types, or in scattered, relatively small areas that were withdrawn from logging because of their steep slopes. Small protected areas, many of which were about the size of the state park in Michigan, contained some patches of old growth. I began to feel that I was documenting the region's remaining population of old-growth forests for

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FIGURE 1.1. Old-growth Douglas-fir and western hemlock forest on the west slope of the Oregon Cascade Range. (Photo: E. Forsman)

posterity. In fact, odd as it now sounds, I saw myself and other scientists on the research project on a noble mission—a latter-day Corps of Discovery—to record and better understand the ecology of these poorly known forests so society could better understand its choices and so managers could use nature as a model in the design of managed forests and landscapes. Since the Lewis and Clark expedition to the region in the early 1800s, the amount of old growth on all lands in Oregon, Washington, and northern California had probably declined by sixty-five to ninety percent (depending on forest type, region, definition, and estimate of historical amounts) as a result of land clearing, timber harvest, and wildfire. This was our last chance to get it right: Our westward movement had, after all, run out of land, and all too soon we were seeing the end of what had at one point seemed like an endless natural bounty of old-growth trees.

I also quickly learned that my education about forests in the Pacific Northwest was only just beginning. For example, as debate on the future of old-growth forests began to spread, I discovered that I was by no means universally viewed as the guy in the white hat. This first struck me one night after I had finished giving a talk at the University of Oregon in Eugene on old-growth ecosystems. Following my talk, in which I described the parts and functions of old-growth Douglas-fir forests, one young man in

the audience rose and echoed the poet Keats's complaint that Newton's experiments with prisms had destroyed the poetry of rainbows. He then asked, "Why do you scientists always have to dissect everything? Why can't you leave nature alone?" I was taken aback—wasn't the scientific approach the best way to address this problem? I responded with something about science being a way to help us understand and appreciate the mystery and beauty of these forests and a way to help us conserve them. I don't think I changed the mind of my critic, but his position made me ponder just what this old-growth debate was really about. It was my first clue that it was not always, or even very often, about the science.

My education about forest conservation in the Pacific Northwest really accelerated in the 1980s and 1990s. In March 1989, I was walking away from a symposium in downtown Portland where I had just presented some of the results of my old-growth research, when Jack Ward Thomas, later to become chief of the U.S. Forest Service, stopped me and asked me to join a team that was developing a management plan for the conservation of the northern spotted owl. I told him I'd think about it but later declined the opportunity because I had too much work to do analyzing all those old-growth data, and I did not have time. Policy issues, I thought, just took time away from real science. I now know that I was just about to be swept into the policy turmoil, setting me on a path that included more than scientific research. Just two months later, I'd be wearing a tie and explaining forest succession to Congress in Washington, D.C., at joint House subcommittee hearings on the management of old-growth forests of the Pacific Northwest.

Four years and several court injunctions later, much of the timber harvesting in the Pacific Northwest had been shut down by a U.S. judge. I found myself on the thirteenth floor of a bank building in Portland, with sixty-five other scientists who were part of one of the largest science and forest policy assessments ever attempted in the United States. We had been asked by President Clinton to develop, in just ninety days, a suite of scientifically based options for protecting old-growth forests and species of the region on federal lands. Under the Northwest Forest Plan that eventually emerged amid further controversy, conservation and development of old growth moved to center stage. Millions of acres of federal land in the Pacific Northwest are now dedicated to the protection and development of old-growth forests, including fire-prone types that present special conservation challenges (fig. 1.2). Logging of old growth on federal lands has slowed to a trickle—far below what the plan actually allows.

Now more than fifteen years have passed since the Northwest Forest Plan was established, arguably since the period when old growth as a

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BOX 1.1. THE FOREST WAR

Frederick J. Swanson

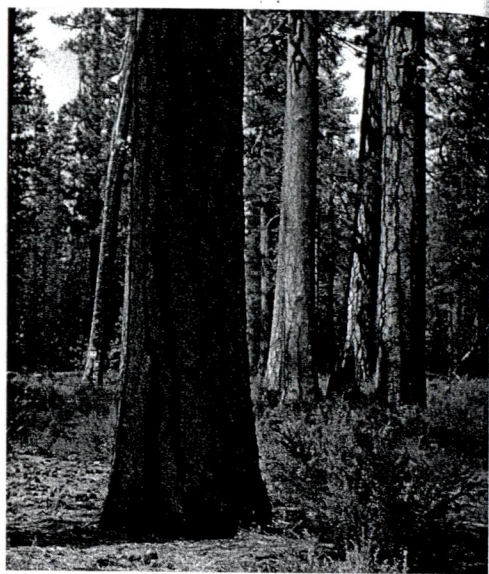
The well-used metaphor of *war* aptly characterizes the conflict enveloping change in federal forestry in the Pacific Northwest in the late 1980s and early 1990s—the period of the forest war, the old-growth war. The public media, the courtroom, forest access roads, and even treetops where activists perched were the battlefields. Representatives of the forest industry; foresters; environmentalists; and elected officials of county, state, and federal governments were the principal combatants. They used the weapons of lawsuits, public demonstrations on city streets and forest roads, and loud voices wherever they might have desired effects. Old-growth forests, the spotted owl, photographs of forlorn children of loggers, and bumper stickers reading “Earth First! We’ll log the other planets later” were among the banners in the battles. As with many wars, a set of latent tensions intensified until a triggering event erupted into open conflict, which raged and then subsided as combatants won and lost battles and general fatigue set in. Old growth was central to the run up to war and was a stage for the war itself. What will be the place of old growth in society in the developing postwar period? Can those who fought in this war move beyond seeing old-growth and forest issues as a battle? Could it be that new common “enemies”—fire, climate change, or globalization—change some former foes into allies?

regional and global icon truly “came to power.” This change occurred not only on federal lands in the Pacific Northwest; the states of Oregon and Washington also have revised their plans to include protection of older forests, and some timber companies have issued statements swearing off the cutting of old-growth forests as part of forest certification. Outside the United States, in places such as British Columbia, southeastern Australia, and northern Sweden, where thousands of acres of old, pre-Industrial-age forest still exist, old growth also has been rediscovered by societies with new priorities for management. In the eastern United States and other places where little or no old growth exists, some are seeking to locate and protect the tiny fragments of old growth, let forests return to the wild, or “restore” old growth. However, the old-growth controversies in the Pacific Northwest have captured the public and scientific interest around the world. The global prominence of the Pacific Northwest on this issue may not be so much because of its uniqueness but because humans can easily see the broader implications of the struggle to protect the idea and physical reality of wild forests in an increasingly human-dominated world.



FIGURE 1.2. Old-growth ponderosa pine with a history of surface fire. (Photo: T. Iraci)

The centuries-old trees of the Pacific Northwest now exist in a new social, scientific, and economic world—different, certainly, from the heyday of westward expansion 100–150 years ago, different even from twenty years ago. What roads have led us as a society from the ghost forests of the eastern United States to the black hat/white hat schizophrenia of old-growth science and old-growth values in the Pacific Northwest? What have been the roles of science, policy, and politics in the spectrum of changes? It is wise perhaps to question whether the options developed by a group of scientists in ninety days fifteen years ago for the Northwest Forest Plan could really have provided a sound scientific and social basis to meet society's needs for forest ecosystem goods and services far into the future. What is the prognosis for our oldest forest stands and for the many other components of forest biological diversity, as we move toward an uncertain future? Will the pendulum swing back to the timber policies that led to removal of old growth in the eastern and central United States? Or does the concept of a pendulum swinging through a finite set of beliefs and options severely limit our understanding of what old growth really means?



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What This Book Is About

Our goals for the book are to provide a broad suite of perspectives in chapter form on the changes that have occurred in the valuing and management of old-growth forests in the Pacific Northwest. We seek to provide the building blocks for a more comprehensive and in-depth understanding of the old-growth issue, drawing from diverse ecological, social, and economic perspectives, and trying always to recognize their complex interactions. Although many of the chapters are by academics, the intended audience is anyone who is interested in obtaining a better understanding of how people think about forest conservation and management with regard to old-growth forests. Consequently, the chapters do not assume a specialist's level of knowledge in these topics, and arguments within them are not overly burdened with jargon, data, and citations. These are informed opinions from a variety of people who have collectively thought about this issue for more than 500 person-years. We address several questions: Will the current path lead us where we want to go? What problems, paradoxes, road blocks, and uncertainties remain? What does the "new world" of climate change, globalization, and urbanization portend for the old trees and forests that many people in the Pacific Northwest now seek to conserve?

Our premise is that old-growth forests have become icons—objects of uncritical devotion that carry relatively fixed notions of what in fact is a dynamic and complicated mix of ecological understanding and human values. The enduring old-growth icon arose from a time of social turmoil beginning in the last quarter of the twentieth century and rapidly became entrenched as a most effective rallying cry against many aspects of forestry and public land management.

The old-growth icon takes many forms. All of them relate to how we view nature in general and forests in particular and sharpen as we understand how human impacts on the environment have accumulated momentum through time. The characteristics of this icon include

- *Naturalness*—a world apart from human intervention; a place where nature reaches full expression or even perfection
- *Stability*—the end of succession (climax); ancient trees whose age predates the arrival of Euro-Americans
- *Habitat for charismatic species*—the exclusive home of the northern spotted owl and other threatened and endangered organisms

- *A charismatic ecosystem*—a place of interconnectedness, high diversity, and ecosystem functions that relate to water use, carbon storage, and the reservoir of species with untapped potential value to society
- *Beauty*—aesthetic appeal—associated with appreciation of form, light, and colors that may derive from our European, artistic traditions
- *Place of wonder and mystery*—of spiritual experience, impervious to the world of science, and scientific mysteries; unknown species and relationships
- *Economic and aesthetic value of the product*—high value of large pieces of tight-grained wood that comes from old trees.

These iconic expressions have actively altered the way society relates to old-growth forests and have catalyzed major changes in policy and management. How appropriate they are and how well they really serve in reaching conservation goals for old growth are the questions we tackle in this book. How does our changing scientific knowledge of forests and their history square with the various iconic values of old growth? Do forest policies that were based on one set of scientific or social assumptions meet the needs of a changing world?

We wonder, for example, whether the power of the icon has unintentionally sown the seeds for the next forest crisis or loss of many of the values that were originally sought. Public perceptions and many conservation approaches have emphasized a static view and typically treated the problem as black and white: A forest is either old growth or not, the landscape should be divided into either old-growth reserves with no management or timber production areas with high-yield forestry. We may seek one or at most a few definitions of old growth, but more recent work in ecology has demonstrated how diverse forests and old growth are and how disturbances such as fire, wind, and insects are important to old-growth function and development. If we try to pin the definition down in place and time, might it ultimately elude us? Most challenging of all are fundamental differences in personal worldviews about old growth. These ecological and social complexities make it difficult to get consensus, conduct planning, and carry out management activities that are needed to help protect and restore native forest diversity and provide other forest values.

We examine the story of where we are with respect to old growth today in six parts. In part I, we lay out the story of old-growth values and conservation in the Pacific Northwest and demonstrate how it is about the fer-

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ment and evolution of ideas in ecology, management, economics, and society. Concepts of old growth emerge differently in different arenas through time, influencing each other directly, indirectly, and unevenly.

In part II, we explore old growth through the ideas of leading ecological and social scientists. This section sets up the idea that scientific perspectives on and knowledge about old growth continue to evolve in multifaceted ways, even though some aspects of the icon have stabilized around ideas from more than a quarter-century ago. These chapters raise serious questions about the fundamental basis of our ideas about old growth and our relationship with it.

In part III, we present different perspectives and different ways of expressing how humans have related to old growth in the immediate past and how those relationships affect our current and future old-growth policies. The authors were selected for their range of views and forms of expression and their depth of experience with forest issues in the Pacific Northwest.

In part IV, we address the implications for the future management of old-growth forests from the perspective of changes that have occurred in policies and global forestry. We also consider the barriers and opportunities to learning through adaptive management and new ways of thinking that could help bring economics into greater congruence with social values. Finally, we examine the different forms of uncertainty and ways in which decision-making processes can operate under uncertainty.

In part V, we consider how evolving science and social knowledge might be used on the ground, with actual trees and in real landscapes. We consider, for example, questions such as how do we manage at both stand and landscape levels and what new economically viable management strategies are available to private landowners seeking to contribute to the biodiversity that is often associated with the iconic old-growth forests.

Our concluding section presents two types of synthesis. The first focuses on themes that emerge from the different chapters—is there convergence among disciplines and worldviews? What are the roots of differences, what are the real implications of using icons, and what are some more effective ways to relate to forests than we do now, given the diversity of opinions on forest management? The second chapter in this section draws from the multiple perspectives presented by the authors to lay out some new ways of thinking about conservation of older forests, suggesting options for policy and management that might more effectively complement—or even override—our iconic views of old growth.

Old Growth in a New World

A PACIFIC NORTHWEST ICON REEXAMINED

EDITED BY

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