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## **Special Section:** *The Northwest Forest Plan: a Global Model of Forest Management in Contentious Times*

### **Introduction**

Natural resource extraction and environmentalism are deeply engrained in the social fabric of the Pacific Northwest (U.S.A.) and are often pitted against one another in age-old timber wars that reached a climax in the 1980s and early 1990s. No other species typified these battles more than the Northern Spotted Owl (*Strix occidentalis caurina*), whose listing pursuant to the Endangered Species Act of 1973 ground logging operations to a halt on Northwest federal lands and heightened the debate over endangered species and forest management. Ultimately, this debate resulted in the development of a bold plan intended to break the gridlock over timber versus endangered species management across a broad portion of Oregon, Washington, and California.

The Northwest Forest Plan has its origins in a series of scientific assessments dating back to 1990 (Thomas et al.). (All citations in this introduction are to papers in the Special Section.) But it was not until President Bill Clinton, Vice President Al Gore, and the heads of several federal agencies attended a forest summit in 1993 that the plan came into being. For the first time in U.S. history, a president and his chief advisors spent a full day addressing the leaders of conservation groups, timber industries, and rural communities to announce a shift in federal lands management from decades of unsustainable logging to ecosystem-based management that emphasized biodiversity conservation and endangered species protections. The Northwest Forest Plan emerged shortly after this summit, prepared by a group of scientists under the leadership of a wildlife biologist turned chief of the U.S. Forest Service, Jack Ward Thomas (see Thomas et al.). At the time, President Clinton gave direction to the U.S. Department of Agriculture Forest Service (USFS) and Bureau of Land Management (BLM), which collectively oversee nearly 10 million ha of federal lands within the range of the Northern Spotted Owl, to construct a forest plan such that “our efforts must be, insofar as we are wise enough to know it, scientifically sound, ecologically credible, and legally responsible.” The plan was crafted to protect the long-term health of “our forests, our wildlife, and our waterways,” and to “produce a predictable and sustainable level of timber sales and nontimber resources that will not degrade or destroy the environment.”

Fundamental principles of ecosystem management, conservation biology, and sustainable economics—applied

on a scale never before witnessed in U.S. history—became the core elements of the plan. The forests of the Pacific Northwest would be managed under various land allocations (Thomas et al.) that emphasized protection and restoration across a network of reserves (e.g., late-successional reserves) but provided for commercial logging within the matrix. An Aquatic Conservation Strategy was included (Reeves et al.) to protect riparian zones and key watersheds (salmon-bearing streams) and to provide refugia for aquatic species. To complement the coarse-filter (reserve) components of the plan, a fine-filter approach (Molina et al.) was adopted for rare species that were surveyed and then managed with protective buffers to ensure persistence outside reserves where logging takes place.

More than 10 years have elapsed since the historic forest summit, and this Special Section explores the upshot from the Northwest Forest Plan relative to social and ecological mandates from the perspectives of some of its key architects and those involved in its implementation. As guest editors, we approached this section from our expertise in the conservation biology underpinnings of the plan (D.A.D.) and its early development and implementation (J.E.W.). We were both involved in debates during the plan’s development and one of us (J.E.W.) was a former supervisor of the USFS and National Fisheries program manager for BLM. We view the plan as a model of science-based conservation that is currently caught in the cross hairs of continued conflict over natural resources not unlike what is happening elsewhere on forested lands around the globe.

### **Overview of Articles**

The section rightfully opens with a paper by Thomas et al., the key architects (“Gang of Four”) of the Northwest Forest Plan. These authors trace the evolution of a plan built on the shoulders of scientists involved in seminal research on forest ecosystems of the Pacific Northwest that eventually captured the attention of a president. Thomas et al. call for greater flexibility in forest management to achieve additional ecological objectives of the plan, particularly in fire-adapted systems, while making a case for ending old-growth logging on federal lands. Noon and Blakesley provide a review of factors contributing to the

decline of the Northern Spotted Owl and the plan's effectiveness in maintaining this threatened species in the face of new threats from invasions by Barred Owls (*Strix varia*) and continued habitat loss on nonfederal lands. Raphael then discusses the population status of the threatened Marbled Murrelet (*Brachyramphus marmoratus*), a coastal seabird that uses both old-growth forests and marine ecosystems, and the importance of the plan's reserved areas for maintaining its persistence.

Although the Northwest Forest Plan has its origins in the Northern Spotted Owl timber wars, it was designed to provide a high likelihood of persistence for hundreds of rare species associated with old-growth forests. Molina et al. discuss the fine-filter ("survey and manage") elements of the plan in conserving a broad suite of taxa never before attempted in large-scale conservation planning in the United States. Additionally, Reeves et al. provide insights on elements of the reserve design for aquatic and riparian areas. They pay special attention to salmonids, the "flagship" aquatic species of the Northwest and the taxa some members of Congress were referring to with the following admonition: "and don't let us get blindsided by some damn fish" (Thomas et al.).

The Northwest Forest Plan has been viewed by the timber industry as a "broken promise" because it has not attained the timber volumes forecasted. Charnley explores the underlining social and economic assumptions and economic shortcomings of the plan, whereas Power explores the broader social and economic drivers in the Pacific Northwest and challenges the prevailing views of "timber-dependent communities."

In the final two papers, Spies et al. and Strittholt et al. respectively provide recommendations for managing old-growth forests in disturbance-adapted systems, where losses due to fire exceed timber harvest, and for managing the remaining mature and old-growth forests at risk from continued logging, particularly if protective components of the plan are dismantled.

## Effectiveness of the Plan

Proper assessment of the efficacy of the Northwest Forest Plan in reaching its ecological and social objectives requires long-term monitoring and evaluation (e.g., every 10–15 years for at least the next 100 years). The architects of the plan recognized that at least for some of the plan's objectives, such as restoring old-growth forests, effectiveness could not be judged for decades (or centuries) because a substantial (~60%) portion of the 2.97 million ha of forest reserves includes structurally simplistic plantation forests (Thomas et al.; Strittholt et al.) that will be managed over time to achieve old-growth forest conditions. In reaching this decision, the plan's authors recognized there were inherent ecological risks (because old-growth forests have never been created by land

managers before) and social needs (sustain a predictable supply of timber). Whereas some economic forecasters, however, predicted the plan would cause social upheaval with more than 200,000 timber-related job losses, many communities of the Pacific Northwest (especially those along major transportation corridors) today are among the fastest growing places in the nation (Power).

Perhaps the greatest achievement of the Northwest Forest Plan is that it has planted the seeds of change in management-agency culture that will move the work of these institutions away from resource extraction and toward biodiversity conservation. The new direction will continue to be disturbed by countering forces, but we believe the long-term change in direction is firmly rooted.

## Future of the Plan

Although the plan has largely stood up to scientific scrutiny (as judged by several authors herein), several key components have been challenged by conservationists and timber interests and other components have undergone administrative changes designed to weaken protections. Each successive government administration that oversees the plan will apply its own vision of forest management, and federal agencies responsible for administering it will be caught in a constant tug-of-war driven by politics and special interests. This push-pull is particularly evident in the contrast between the Clinton administration, which emphasized ecological objectives of the plan, and the current Bush administration, which emphasizes timber production. As the implementation pendulum swings back and forth, key ecological components of the plan are at risk from administrative changes, including:

- proposed elimination of more than 280,000 ha of late-successional and riparian reserves on BLM lands in western Oregon (Strittholt et al.) in response to a legal settlement between the Bush administration and the timber industry;
- elimination of the protective buffers and "survey and manage" provisions for hundreds of rare species outside the reserves (Molina et al.);
- rollbacks in the Aquatic Conservation Strategy (Reeves et al.) that include increased logging at the watershed scale;
- proposed delisting of federally listed threatened species (Marbled Murrelet, Raphael) triggering reduced conservation measures; and
- stepped-up salvage logging in reserves following wildland fires (Strittholt et al.).

Nevertheless, the Northwest Forest Plan ushered in sweeping changes in federal lands management and positioned the agencies for the challenges of forest management we now face across the globe. To abandon it would

be shortsighted, but to expect a different outcome socially and ecologically with the same elements of the plan in place would be illogical. The major challenge faced by those that care about old-growth forests and sustainable jobs in the Pacific Northwest remains whether or not we can have both (as was proposed a decade ago under Clinton's leadership). Dismantling the core ecological elements of the plan to reach what is arguably an unrealistic economic objective (Power) compromises the ecological fabric of the plan and its emphasis on ecosystem management and biodiversity conservation. In particular, the economic outputs of the plan, measured in board feet or cubic meters, may have been too rosy a projection for lands already characterized by a history of overcutting (Strittholt et al.) and for meeting the ecological objectives of the plan. On the other hand, some national forests (such as the Siuslaw along the Oregon Coast and Gifford Pinchot in southwestern Washington) have avoided conflict by switching to sales of small-diameter timber that have not been challenged by environmental groups, thereby maintaining a reliable flow of timber. Thus, as noted by Thomas et al., an end to old-growth logging may be socially attainable today and appears to be widely supported by the public (e.g., in a 2002 poll of 600 registered voters in Washington and Oregon, 70% supported additional protections). To get there, however, the restoration and

adaptive management components of the plan, which call for fuels treatments involving small-diameter trees, riparian restoration, and experimental forestry, could use an infusion of funds because they have been neglected largely by budget constraints, agency downsizing, and distrust (Thomas et al.).

The Northwest Forest Plan will most likely be tweaked periodically by incoming administrations. The merits of future changes, however, should be judged on the basis of whether they are motivated by adaptive management needs and new scientific discoveries or by a desire to appease interests favored by whichever side is in power at the time.

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