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# Ponderosa Pine Ecosystems Restoration and Conservation: Steps Toward Stewardship

## Conference Proceedings

Flagstaff, AZ, April 25–27, 2000

## Abstract

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This volume is divided into three sections: (1) Ecological, Biological, and Physical Science; (2) Social and Cultural; and (3) Economics and Utilization. Effective ecological restoration requires a combination of science and management. The authors of the first section exemplified this integration in the course of addressing a broad range of topics, from detailed microsite and small-scale changes in fungal, plant, and animal communities, up through landscape, regional, and subcontinental scales. Although the themes were diverse, papers were linked by underscoring the relationship between restorative management actions and ecological effects. Social sciences play a key role in ecosystem restoration because collaboration, development of common goals, and political and economic feasibility are essential for success. The authors of the second section focused on public attitudes, partnerships, and the relationship between social and ecological factors. In the third section, the economics and utilization of products from forest restoration were compared in several Western locations. Both the markets for these products and the range of utilization opportunities—from small-diameter logs to energy creation—will surely evolve rapidly as society moves to address the fire hazards and other problems caused by stressed and weakened ecosystems. The turn of the century is an appropriate point to capture dramatic changes in perspective: consider how attitudes toward Western forests have evolved between 1900 and 2000. The papers in this volume chronicle adaptive research that continues to deepen our understanding of restoration in ecosystems and social systems.

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Keywords: ponderosa pine, ecosystem management, landscape management, restoration, conservation, fire behavior, cost effectiveness analysis

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# Ponderosa Pine Ecosystems Restoration and Conservation: Steps Toward Stewardship

## Conference Proceedings

Flagstaff, AZ, April 25–27, 2000

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Bureau of Land Management, Arizona Strip Office

Four Corners Forest Partnership

The Nature Conservancy-The Northern Arizona Office

Grand Canyon Trust

Society for American Foresters, Peaks Chapter

Bureau of Indian Affairs



## Preface

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Contemporary ponderosa pine forests and associated grasslands in the Southwest have changed dramatically since Euro-American settlement in the 1870s. Intensive grazing, selective harvesting of large trees and fire suppression have led to changes in forest structure and composition that are unprecedented in the evolutionary history of these frequent fire ecosystems. The consequences of the changes include: increased risk of stand-replacing crownfire, decreased biological diversity, increased vulnerability to disease and insect outbreaks, and increasing ecosystem health problems that will compromise the long-term viability of ponderosa pine forests.

Local, State, Federal, and Tribal land management agencies have begun to address the problems of degraded ponderosa pine forests throughout the Intermountain West. Stakeholders from communities at risk of catastrophic fire and private landowners have also stepped forward to work collaboratively with land management agencies to design forest restoration treatments that will not only protect lives and property but also protect and restore the values and benefits provided by a healthy forest.

However, crafting scientifically valid and socially acceptable treatments is not simple. It requires commitment and constructive dialogue among people with diverse backgrounds and interests. They must be willing to listen to each other and become informed about ecology, economics, and management challenges, as well as the philosophical and social sides of forest restoration. Most important, it requires those people to build a common vision for forest restoration that can be translated into specific actions and applied by land managers. Given the scope of forest degradation and the need to act quickly it is essential that the information and lessons learned actively shared, applied, and adapted to implement the best treatments possible.

The **Steps Toward Stewardship: Ponderosa Pine Ecosystems Restoration and Conservation** conference, held in Flagstaff, AZ on April 25-27, 2000, was designed to share lessons and emerging research and information critical to successful ecologically based forest restoration. A diverse group of organizations representing a broad spectrum of expertise and interests sponsored this first national conference. The audience included researchers, academics, land managers, citizens, policy makers and other interested stakeholders from across the nation. Presenters were encouraged to identify critical indicators and benchmarks of success or failure in ponderosa pine ecosystem restoration and conservation, and the methods for evaluating these indicators. In addition, panels were designed to clarify points of agreement and disagreement across interests and disciplines so that future conservation/restoration research and experiments can advance understanding of these issues. Finally, participants were encouraged to identify missing elements—such as research, monitoring, or other factors—that are critical to develop effective conservation and restoration practices for ponderosa pine forest ecosystems.



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and Physical Science**




**Social and Cultural**



**Economics and  
Utilization**



**List of  
Conference  
Participants**





# Ecological, Biological, and Physical Science



