Land Manager’s Guide to Aspen Management in Oregon
## Contents

**Foreword** ............................................................................................................................................................ ii  
**Acknowledgments** ............................................................................................................................................ iii  
**About the Authors** .............................................................................................................................................. iv  
**Chapter 1. Introduction** ....................................................................................................................................... 1  
**A Smorgasbord for Wildlife** .................................................................................................................................... 2  
**Chapter 2. Ecology of Quaking Aspen** ............................................................................................................ 3  
**Arborglyphs: A Record of the Past** .................................................................................................................. 7  
**Chapter 3. Assessing Aspen Health** ................................................................................................................ 8  
**Chapter 4. Identifying Actions to Improve Aspen Health** ............................................................................ 24  
**Chapter 5. Enhancing Your Aspen Through Management Practices** ......................................................... 32  
  Case Study 1. Aspen Enhancement on the Deschutes National Forest ................................................................. 42  
  Case Study 2. Enhancing Aspen Woodlands on the Fremont-Winema National Forests .................................. 48  
  Case Study 3. Restoration of Aspen Woodlands Invaded by Western Juniper ................................................. 51  
  Case Study 4. Effectiveness of Fenced Exclosures in Aspen Restoration ........................................................... 55  
**Chapter 6. Incorporating Livestock and Aspen Management** .................................................................... 61  
**Chapter 7. Where Do You Go from Here? Planning and Getting Help** ....................................................... 65  
**Appendices**  
  **Appendix I. References** ................................................................................................................................ 69  
  **Appendix II. Insect, Disease, and Animal Damage** ......................................................................................... 74  
  **Appendix III. Glossary** .................................................................................................................................. 77  
  **Appendix IV. Supplies and Equipment Needed to Complete the FULL and RAPID Assessments** ............ 79  

This manual is available online at [http://extension.oregonstate.edu/catalog/](http://extension.oregonstate.edu/catalog/)

© 2010 Oregon State University. This publication may be photocopied or reprinted in its entirety for noncommercial purposes.

This publication was produced and distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914. Extension work is a cooperative program of Oregon State University, the U.S. Department of Agriculture, and Oregon counties. Oregon State University Extension Service offers educational programs, activities, and materials without discrimination based on age, color, disability, gender identity or expression, marital status, national origin, race, religion, sex, sexual orientation, or veteran’s status. Oregon State University Extension Service is an Equal Opportunity Employer.

This material is based upon work supported by the Natural Resources Conservation Service, U.S. Department of Agriculture. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the authors and do not necessarily reflect the view of the U.S. Department of Agriculture.

Published September 2010

*Land Manager’s Guide to Aspen Management in Oregon*
Foreword

We are Kevin and Carol Westfall, residents of Klamath Falls, Oregon. We own property that is located northeast of Chiloquin at an elevation of 4,700 feet. This property consists of meadows interspersed with conifer stands and patches of aspen. The meadows, which make up about one-half of the acreage, are irrigated by two springs. The dominant tree species are lodgepole pine and ponderosa pine, with about 20 acres of quaking aspen.

The property appeals to us for a multitude of reasons. The meadows are well suited for livestock grazing, the timber is managed for both commercial and home firewood production, and there are many opportunities for outdoor recreation.

When we purchased the property, we were not aware of aspen’s unique characteristics nor of its importance to the forest ecosystem. Aspen’s value as a wildlife food source was one of the main reasons we decided to prioritize the enhancement of this species.

We have attended workshops, read articles, and received technical assistance from informed resource professionals. All of this has helped guide us in our efforts.

Throughout the West, aspens have been declining for a number of years and for a variety of reasons. We encourage anyone with an interest in aspen to get involved in the management and enhancement of this valuable member of the natural world.

Kevin and Carol Westfall
Acknowledgments

The Oregon State University Extension Service and Forest Restoration Partnership gratefully acknowledge the financial support of the USDA Natural Resources Conservation Service in producing this publication. We also thank colleagues from the USDA Forest Service, Bureau of Land Management, Wallowa Resources, Agricultural Research Service, Oregon Department of Fish and Wildlife, Oregon State University Extension Service, and National Park Service for their valuable contributions to this manual.

Editors: Nicole Strong, Teresa Welch, Betsy Littlefield, and Darin Stringer
Principal illustrator: Gretchen Bracher
Photographers: Photos and illustrations are credited where they appear.
About the authors

Jon Bates has been a rangeland ecologist with the Agricultural Research Service (ARS) at the Eastern Oregon Agricultural Research Center in Burns, Oregon for 12 years. His research is focused on big sagebrush steppe ecology and management, management and shrub-steppe restoration in juniper woodlands, fire ecology, and grazing management.

Kirk Davies has been a rangeland ecologist with the ARS at the Eastern Oregon Agricultural Research Center in Burns, Oregon the past 3 years. His research is in the following general areas: big sagebrush steppe ecology and management, management of medusahead and western juniper, and fire ecology.

Tim Deboodt started working for the University of Wyoming Cooperative Extension Service in 1983 in Teton County. In 1987, he moved to Prineville, Oregon and is now a faculty member with the Oregon State University Extension Service, serving the central Oregon region by developing and delivering educational information related to rangelands, their use, and management. Programs include restoration of semiarid watersheds, range improvements, livestock grazing systems, and land management policy issues. Current research activities include the effects of western juniper control on watershed function and hydrology, water quality parameters as influenced by land management activities, and restoration of rangeland health using prescribed fire and other management practices.

Stephen Fitzgerald is the eastside silviculture and wildland fire education specialist for the Oregon State University Extension Service, stationed in Redmond, Oregon. He conducts extensive educational programming in forest management, wildland fire ecology, fuel reduction, and post-fire recovery. Much of his silviculture research work deals with improving forest health in eastside dry forests.

Ann Humphrey is a biologist who has been fortunate to spend the past 31 years working in a variety of ecological systems across the United States, from sage grasslands and ponderosa woodlands in Wyoming to tall grass prairies in Minnesota, old-growth forests in Washington, and seabird colonies in the northwestern Hawai’ian Islands. She has spent much of the past 5 years studying the Zumwalt Prairie in northeastern Oregon, where she recently collaborated with Wallowa Resources, a local nonprofit, to examine the effectiveness of aspen exclosures.

John Kaiser is a forest archaeologist on the Fremont-Winema National Forests.

Jim Lowrie has had a 33-year career with the U.S. Forest Service in the White River, San Juan, Black Hills, Malheur, Olympic, and Deschutes National Forests. He is currently district wildlife biologist, Bend-Ft. Rock Ranger District, in the Deschutes National Forest. His primary aspen management experience has been in Colorado, Wyoming, and Oregon.

Amy Markus is the forest wildlife biologist for the Fremont-Winema National Forests, where she has worked for 14 years.

Tom Rodhouse is an ecologist for the National Park Service Upper Columbia Basin Network Inventory and Monitoring Program. He designs and implements monitoring and also supports research projects addressing sagebrush steppe vegetation, aspen woodlands, pikas, bats, and rare plants such as the Montana endemic Lemhi penstemon.

Rob Sharp is a rangeland management specialist with the U.S. Department of the Interior Bureau of Land Management, Burns, Oregon. Previously he worked as a range technician for ARS at the Eastern Oregon Agricultural Research Center.

Darin Stringer directs the Forest Restoration Partnership, an organization that promotes enhancement of rare and declining forest habitats throughout the West. He is a consulting forester and restoration ecologist working on projects on both private and public lands.

Nicole Strong is an educator with the Oregon State University Forestry and Natural Resources Extension Program. She was a Peace Corps volunteer in Guatemala and applies those service principles to the teaching and research she does today.