



Forest Health Through Silviculture

Proceedings of the 1995 National Silviculture Workshop

Mescalero, New Mexico
May 8–11, 1995

Compiler

Lane G. Eskew, Station Editor
USDA Forest Service
Rocky Mountain Forest and Range Experiment Station
Fort Collins, Colorado

✓
190

Publisher

USDA Forest Service
Rocky Mountain Forest and Range Experiment Station
Fort Collins, Colorado

Contents

FOREST HEALTH

Opening Remarks	3
<i>Chip Cartwright</i>	
Forest Health From Different Perspectives	5
<i>T.E. Kolb, M.R. Wagner, and W.W. Covington</i>	
Fire in the Forest	14
<i>Jim Saveland</i>	
Disturbance in Forest Ecosystems Caused by Pathogens and Insects	20
<i>Philip M. Wargo</i>	
Forest Development Leading to Disturbances	26
<i>Clinton E. Carlson, Stephen F. Arno, Jimmie Chew, and Catherine A. Stewart</i>	
The Way to a Healthy Future for National Forest Ecosystems in the West: What Role Can Silviculture and Prescribed Fire Play?	37
<i>Douglas W. MacCleery</i>	
Ecosystem Management, Forest Health, and Silviculture	46
<i>Merrill R. Kaufmann and Claudia M. Regan</i>	
Forest Ecosystem Health in the Inland West	53
<i>R. Neil Sampson, Lance R. Clark, and Lynette Z. Morelan</i>	

ROLE OF DISTURBANCE

Disturbance Regimes and Their Relationships to Forest Health	67
<i>Brian W. Geils, John E. Lundquist, Jose F. Negrón, and Jerome S. Beatty</i>	
Disturbance and Canopy Gaps as Indicators of Forest Health in the Blue Mountains of Oregon	74
<i>J.S. Beatty, J.E. Lundquist, and B.W. Geils</i>	
Allegheny National Forest Health	79
<i>Susan L. Stout, Christopher A. Nowak, James A. Redding, Robert White, and William McWilliams</i>	
Root Diseases: Primary Agents and Secondary Consequences of Disturbance	87
<i>William J. Otrosina and George T. Ferrell</i>	
Impacts of Southern Pine Beetles in Special Management Areas	93
<i>Stephen R. Clarke</i>	
Gypsy Moth Role in Forest Ecosystems: The Good, the Bad, and the Indifferent	99
<i>Rose-Marie Muzika and Kurt W. Gottschalk</i>	
Exotic Pests: Major Threats to Forest Health	105
<i>J. Robert Bridges</i>	

ASSESSMENT AND MONITORING

- Assessing Pathogen and Insect Succession Functions in Forest Ecosystems 117
Susan K. Hagle, Sandra Kegley, and Stephen B. Williams
- Describing the Conditions of Forest Ecosystems Using Disturbance Profiles 128
J.E. Lundquist and J.P. Ward, Jr.
- Forest Vegetation Simulation Tools and Forest Health Assessment 135
Richard Teck and Melody Steele

PARTNERSHIPS

- Developing Technology: A Forest Health Partnership 145
John W. Barry and Harold W. Thistle
- Building Partnerships to Evaluate Wood Utilization Options for Improving Forest Health . 153
Kenneth Skog, David Green, R. James Barbour, John Baumgras, Alexander Clark, III, Andrew Mason, David Meriwether, and Gary Meyers
- The Applegate Adaptive Management Area Ecosystem Health Assessment 162
Thomas Atzet
- Effects of Thinnings on Growth and Yield in Natural *Pinus Arizona* and *Pinus Durangensis* Stands in the El Largo-Madera Region in Chihuahua State 167
Oscar Estrada Murrieta, Luis A. Dominguez Pereda, and Marcelo Zepeda Bautista

ROLE OF SILVICULTURE

- Two-Age Silviculture—An Innovative Tool for Enhancing Species Diversity and Vertical Structure in Appalachian Hardwoods 175
Gary W. Miller, Petra Bohall Wood, and Jeffrey V. Nichols
- Application of the Forest Vegetation Simulator in Evaluating Management for Old-Growth Characteristics in Southwestern Mixed Conifer Forests 183
Claudia M. Regan, Wayne D. Shepperd, and Robert A. Obedzinski
- Putting White Pine in Its Place on the Hiawatha National Forest 195
Allen D. Saberniak
- The Role of Genetics in Improving Forest Health 200
Mary F. Mahalovich
- Silvicultural Practices (Commercial Thinning) are Influencing the Health of Natural Pine Stands in Eastern California 208
Gary O. Fiddler, Dennis R. Hart, Philip M. McDonald, and Susan J. Frankel
- Is Self-Thinning in Ponderosa Pine Ruled by *Dendroctonus* Bark Beetles? 213
William W. Oliver

Using Silviculture to Improve Health in Northeastern Conifer and Eastern Hardwood Forests	219
<i>Kurt W. Gottschalk</i>	
Implementing Forest Ecosystem Health Projects on the Ground	227
<i>Cathy Barbouletos and Lynette Z. Morelan</i>	
Atypical Forest Products, Processes, and Uses: A Developing Component of National Forest Management	232
<i>Mike Higgs, John Sebelius, and Mike Miller</i>	
Closing Remarks: A Visit to Dr. Stout's and Dr. Murphy's Forest Health Clinic	236
<i>Russell T. Graham and Theresa B. Jain</i>	
Attendees of the 1995 National Silvicultural Workshop	244