

Proceedings for the Sierra Nevada Science Symposium 2002

Introduction	v
Acknowledgments	vii
Achieving a Nexus of Science and Policy, Management and Policy in Sierra Nevada	1
Keynote	7
Session 1 – Climate and Landscape Change over Time	23
Session Overview: Climate and Landscape Change Over Time <i>Constance I. Millar</i>	25
Interannual-scale to Century-scale Climate Variability in Western North America <i>Malcolm K. Hughes</i>	33
Regional Changes and Global Connections: Monitoring Climate Variability and Change in the Western United States <i>Henry F. Diaz</i>	37
Recent Projections of 21st-century Climate Change and Watershed Responses in the Sierra Nevada <i>Michael D. Dettinger, Daniel R. Cayan, Noah Knowles, Anthony Westerling, and Mary K. Tyree</i>	43
Response of Sierra Nevada Vegetation and Fire Regimes to Past Climate Changes <i>R. Scott Anderson</i>	47
Climate Change in Wildland Management: Taking the Long View <i>Scott Stine</i>	51
Mountains, Fire, Fire Suppression, and the Carbon Cycle in the Western United States <i>David Schimel</i>	57
Session 2 – Fire and Physical Processes	63
Fire in the Sierra Nevada <i>Carl N. Skinner and Scott L. Stephens</i>	65
Fire and Landscapes: Patterns and Processes <i>Jan W. van Wagendonk</i>	69

Fire and Fire Surrogate Study in the Sierra Nevada: Evaluating Restoration Treatments at Blodgett Forest and Sequoia National Park <i>Eric E. Knapp, Scott L. Stephens, James D. McIver, Jason J. Moghaddas, and Jon E. Keeley</i>	79
Effectiveness of Thinning and Prescribed Fire in Reducing Wildfire Severity <i>Philip N. Omi and Erik J. Martinson</i>	87
Linking Vegetation Patterns to Potential Smoke Production and Fire Hazard <i>Roger D. Ottmar and Ernesto Alvarado</i>	93
Session 3 – Forest Ecosystems	97
Session Overview: Forest Ecosystems <i>John J. Battles and Robert C. Heald</i>	99
Biosphere and Atmosphere Interactions in Sierra Nevada Forests <i>Allen H. Goldstein</i>	101
Landscape Pattern and Ecological Process in the Sierra Nevada <i>Dean L. Urban</i>	105
Nutrient Cycling in the Sierra Nevada: The Roles of Fire and Water at Little Valley, Nevada <i>Dale W. Johnson</i>	109
Sierra Nevada Grasslands: Interactions Between Livestock Grazing And Ecosystem Structure and Function <i>Barbara H. Allen-Diaz</i>	111
Forest Stand Structure and Development: Implications for Forest Management <i>Kevin L. O'Hara</i>	115
Session 4 – Aquatic Systems and Watersheds	119
Aquatic Systems and Watersheds <i>Rick Kattelman and Fraser Shilling</i>	121
Non-Native Fish Introductions and the Reversibility of Amphibian Declines in the Sierra Nevada <i>Roland A. Knapp</i>	127
Establishing Reference Conditions for Streams and Measuring Ecological Responses to Management Actions Using Aquatic Invertebrate Biological Assessments <i>David Herbst</i>	133
Nutrient and Sediment Transport in Streams of the Lake Tahoe Basin: A 30-Year Retrospective <i>Robert Coats</i>	143

Assessing Cumulative Watershed Effects in the Central Sierra Nevada: Hillslope Measurements and Catchment-Scale Modeling <i>Lee H. MacDonald, Drew Coe, and Sandra Litschert</i>	149
Turning Stumbling Blocks into Stepping Stones in the Analysis Of Cumulative Impacts <i>Leslie M. Reid</i>	159
Session 5 – Biodiversity	165
Biodiversity in the Sierra Nevada <i>Dennis D. Murphy, Erica Fleishman, and Peter A. Stine</i>	167
Invasive Exotic Plant Species in Sierra Nevada Ecosystems <i>Carla M. D'Antonio, Eric L. Berlow, and Karen L. Haubensak</i>	175
The Status and Conservation of Mesocarnivores in the Sierra Nevada <i>William J. Zielinski</i>	185
A Framework for Setting Land Conservation Priorities in the Sierra Nevada <i>Frank W. Davis, Chris C. Costello, David Stoms, Elia Machado, and Josh Metz</i>	195
The Future of Biodiversity in the Sierra Nevada through the Lake Tahoe Basin Looking Glass <i>Patricia N. Manley</i>	207
Policy and Institutions Response	219
Sierra Nevada Science Symposium: Policy and Institutions Synthesis <i>Mark Nechodom, Larry Ruth, and Jim Quinn</i>	221
Poster Sessions	231
Session 1 – Climate and Landscape Change over Time	233
Session 2 – Fire and Physical Processes	240
Session 3 – Forest Ecosystems	248
Session 4 – Aquatic Systems and Watersheds	266
Session 5 – Biodiversity	273
Session 6 – Policy and Institutions	285