September 17, 2002

Dear President Bush and Members of Congress:

As fire researchers and ecologists, we are writing to you concerning the scientific basis for efforts to reduce risks from the kinds of forest fires that have attracted so much media and political attention in the western United States this year. As we elaborate below, responding effectively to this fire situation requires thoughtfulness and care. The fires are traceable to differing factors in different regions and forest types. Some have burned in forests where fire exclusion and land use have created unnatural accumulations of fuels while others have burned in a relatively natural manner. The most debated response to alleviating destructive fires in the future – mechanically thinning trees – has had limited study, and that has been conducted primarily in dry forest types. Thinning of overstory trees, like building new roads, can often exacerbate the situation and damage forest health. Whatever restoration measures are undertaken, preventing the re-emergence of fire problems will require a commitment to manage with fire rather than simply trying to exclude it in the future.

No single cause can explain the variety and number of fires occurring this year in western forests. In some drier forest types, such as the semi-arid ponderosa pine ecosystems, fire exclusion aided by grazing and logging has produced accumulations of highly flammable fuel well outside historical norms. However, in many western forests, including parts of the Siskiyou (mountains of the Biscuit fire), Sierra Nevada, Cascades, and Central Rockies, much of the undergrowth is primarily the product of succession from past logging and other disturbance, rather than fire exclusion alone. In other settings, like southwestern chaparral and the lodgepole pine forests of the Rockies, succession naturally produces highly flammable communities, and periodic crown killing fires are inevitable and ecologically desirable. Drought conditions such as those seen across much of the West this year can produce extensive fires even in areas where fuel loads are “normal.” In all of these areas, increased human activity and habitation on fire-prone landscapes have greatly increased the chances of ignitions and the threats to people and their property when wildfires do occur.

We have no simple, proven prescription for meeting this challenge throughout the West. In semi-arid ponderosa pine forests effective restoration may result from cutting smaller-diameter trees in overly dense stands. However the benefits can only be realized and maintained in the long term through an aggressive post-restoration prescribed fire program that removes surface fuels. The value of thinning to address fire risks in other forest ecosystems is still poorly understood. Although a few empirically based studies have shown a systematic reduction in fire intensity subsequent to some actual thinning, others have documented increases in fire intensity and severity. Models and theories have been advanced to explain these results, but reliable data remain scarce.

In some areas the use of prescribed fire without any “thinning” would be the best restoration method. Indeed, many forests in the West do not require any treatment. These are forests that for thousands of years have burned at long intervals and only under drought conditions, and have been altered only minimally by 20th century fire suppression. These forests are still "healthy"

and thinning would only disturb them, not "restore" them. In short, the variation among our forested landscapes is much too great for one treatment to be appropriate everywhere.

Where thinning is used for restoration purposes in dry forest types, removal of smaller diameter material is most likely to have a net remedial effect. Brush and small trees, along with fine dead fuels lying atop the forest floor, constitute the most rapidly ignited component of dry forests (young forest stands regenerating after timber harvest often burn with the greatest intensity in western wildfires). They most surely post-date management-induced alteration of dry forest fire regimes. And their removal is not so likely to increase future fire intensity, for example from increased insulation and/or the drying effects of wind.

In contrast, removal of more mature trees can increase fire intensity and severity, either immediately post-logging or after some years. These trees provide “insurance” because they often survive surface fires and can speed post-fire recovery. Even if they are diseased, dying or dead, large and old trees and snags are important to many wildlife species and ecosystem functions. Building or re-opening roads to facilitate thinning will also heighten fire risks, since roads correlate with increased numbers of human-started fires. Removing more than small trees and constructing roads will also make collateral damage to forest ecosystems more likely (e.g., through effects on water quality, fish populations, and the spread of invasive species). Therefore, where done, this kind of thinning needs particularly careful planning and implementation. The results require faithful monitoring and analysis before any effort to extrapolate the practice to other segments of the forest landscape.

Forests are dynamic biological systems and their management requires integration of approaches over time and space. Thus, whatever remediation or restoration is undertaken in dry forests, close attention must be paid to the future management of the treated forests. Because of the inevitability of fire in these systems, the goal of restoration has to be landscapes in which we can better control the fires we do not want and promote the ones we do. However, without a thoughtful post-treatment prescribed fire management program, the forests will likely return to its current highly flammable state within a decade or two, losing – among other things – the public investment made in treating it

The location of management treatments is similarly important. Strategic placement of management activities such as thinning and burning within landscapes is critical to accomplishing the most benefit with minimal ecological impact. As an important example, protecting buildings, power lines, and water supplies will be most effectively accomplished by reducing fuels near them.

In summary, fire threats in western forests arise from many causes, and solutions will require a suite of treatments adjusted on a site-by-site basis. Enough experience exists to suggest areas such as the semi-arid ponderosa pine forests where we can, now, undertake corrective action. However, neither the magnitude of the problem nor our understanding of treatment impacts would justify proceeding in panic or without thorough environmental reviews. Moreover, whatever treatments we undertake must include provisions for long-term maintenance, integration of fire, and robust monitoring.

Many communities throughout the West are ready and eager to play a role in sustaining and where necessary actively restoring forests that surround them. Rather than closing the public out of the process, as has been proposed, we believe the public should be engaged more meaningfully in land management decisions. Therefore, we must express our opposition to current legislative and administrative efforts to curtail sharply the public's involvement in the decision-making process on our public lands. While some appeals are frivolous, many are not. Our concern is that if citizens are denied their legitimate right to protest poorly conceived forest projects, then the issue will become more polarized, and we will have more sit-ins and other acts of civil disobedience. A "healthy forests" initiative will be truly effective only if it enhances public participation, which neither the Bush Administration's plan (August 2002) nor Congressman Scott McInnis's legislation (H.R.5319) would do.

Very truly yours,

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BIOGRAPHICAL INFORMATION

Dr. William L. Baker, Professor (Fire Ecology and Landscape Ecology), University of Wyoming, Laramie. Dr. Baker has published extensively on fire ecology in Rocky Mountain forests, including co-editing a new book "Fire and Climatic Change in Temperate Ecosystems of the Western Americas." He has conducted fire research in Rocky Mountain National Park and in several National Forests in the Rocky Mountains. The National Science Foundation, the U.S. Department of Agriculture, the U.S. Department of Energy, the U.S. Geological Survey, the Bureau of Land Management, and the National Park Service have funded his research.

Dr. Jerry Franklin. Professor at the University of Washington.

Dr. Lee E. Frelich is the Director of The University of Minnesota Center for Hardwood Ecology. He has a Ph.D. in Forestry from the University of Wisconsin-Madison, where he studied wind and fire disturbance in hemlock-hardwood forests. Dr. Frelich has also conducted research on fire regimes in conifer forests of northern Minnesota, and was the lead forest ecologist on the Environmental Impact Statement for fuel treatment to reduce fire danger in the 'Big blowdown' of 1999 in Minnesota's Boundary Waters. Frelich is the author of more than 50 scientific publications on forest disturbance and succession, including a recent book 'Forest Dynamics and Disturbance Regimes' from Cambridge University Press. Frelich teaches the fire ecology and management course in the University of Minnesota College of Natural Resources.

Dr. Lisa Floyd-Hanna is a botanist/ecologist with a Ph.D. from the University of Colorado. Her research involves forest health and management projects, primarily in southwestern Colorado and central Arizona. She is currently studying fire effects and fire history in Mesa Verde National Park. She is Program Coordinator, Environmental Studies Program, Prescott College, Prescott, Arizona.

Dr. Jack Herring teaches in the Environmental Studies Program at Prescott College. His teaching and research interest include forest management and the role of forests in the global carbon cycle. He is currently President of the Board of the Walnut Creek Center for Education and Research, which is instigating a regional monitoring and management plan for restoration of about 300,000 acres of Ponderosa and Pinyon Juniper forests in central Arizona.

Dr. Robert H. Gardner, Professor, University of Maryland Center for Environmental Science, Frostburg, Maryland; Fellow of the American Association for the Advancement of Science; Awarded Distinguished Landscape Ecologist (1994) and Distinguished Statistical Ecologist Award (1998). Published over 150 articles and 5 textbooks with an emphasis on disturbance ecology, including forest fires.

Dr. Dennis Knight retired in 2001 after 35 years as a professor at the University of Wyoming, where he taught courses on forest management and the ecosystems of the Rocky Mountain

region. Much of his research focused on the effects of fire and other disturbances. He is the author of 70 publications in peer reviewed journals and books, including Mountains and Plains: The Ecology of Wyoming Landscapes (Yale University Press). Knight was elected president of the Ecological Society of America, a professional organization of some 7,000 scientists, in 1990 and has worked on committees and contracts under the auspices of the American Institute of Biological Sciences, the National Science Foundation, U.S. Forest Service, National Park Service, and the Heinz Center for Science, Economics and the Environment.

Dr. Richard A. Minnich studies the fire ecology of Mediterranean ecosystems of California and northern Baja California. Studies compare fire regimes under different management systems in southern California and Mexico, emphasizing Californian chaparral and mountain conifer forest.

Dr. William H. Romme has studied fire ecology and fire effects in a variety of western ecosystems over the past 25 years. He has published over 50 scientific articles and book chapters on fire ecology, and won an award from the Ecological Society of America for an outstanding paper in ecology. He is conducting on-going, long-term studies of the fire effects and ecological responses to the 1988 Yellowstone fires, and is the lead scientist in a successful ponderosa pine restoration project in southwestern Colorado. He also is heading a team of scientists evaluating the ecological effects of the Hayman fire that burned in 2002 near Denver, Colorado.

Dr. Thomas R. Vale, Professor of Geography, University of Wisconsin, Madison, has been on the Madison campus since 1973. His eight books and dozens of professional papers explore vegetation change and landscape meanings in the United States, especially in the American West.

Dr. Tom Veblen is Professor of Geography at University of Colorado at Boulder, where he has taught since 1981. Formerly he was a Research Scientist with the New Zealand Forest Service and a Professor in the Forestry School of the University of Southern Chile. His research interests are in the areas of forest dynamics and disturbance ecology, especially fire history, and how they are influenced by climatic variation and human activities. He currently has two research projects funded by the National Science Foundation. He has published more than 100 papers in refereed scientific journals on forest ecology and fire history.

cc: Secretary of Interior Norton; Secretary of Agriculture Veneman