

Wildland Fire Management

A Position of the Society of American Foresters

Initially adopted as “Fire Management in Forest and Rangeland Ecosystems” by the Council of the Society on January 31, 1989, and subsequently renewed with revision by the Council on November 12, 1991, August 3, 1994, December 5, 1994, and December 8, 1997. It was renamed “Wildfire Management,” revised, and renewed by Council on December 8, 2002, then renamed “Wildland Fire Management,” revised, and renewed by Council on June 7, 2008 and will expire on June 7, 2013, unless after review the SAF Council decides otherwise.

Position

Our nation’s forests and communities need protection from *wildfire** delivered in a reliable, consistent, and cost-effective manner that does not compromise either public or firefighter safety. The Society of American Foresters (SAF) advocates the use of socially acceptable fire prevention and control regimes to significantly reduce wildfire damage while sustaining resilient forest ecosystems that can meet changing environmental conditions and peoples’ expectations for a full range of forest resource goods, services and values. The SAF therefore advocates actions and use of appropriate tools that will a) restore and maintain *fire-dependent* ecosystems so they provide sustainable environmental, social and economic benefits, and b) reduce the risk of wildfire to communities and the environment by treating hazardous fuels. To that end,

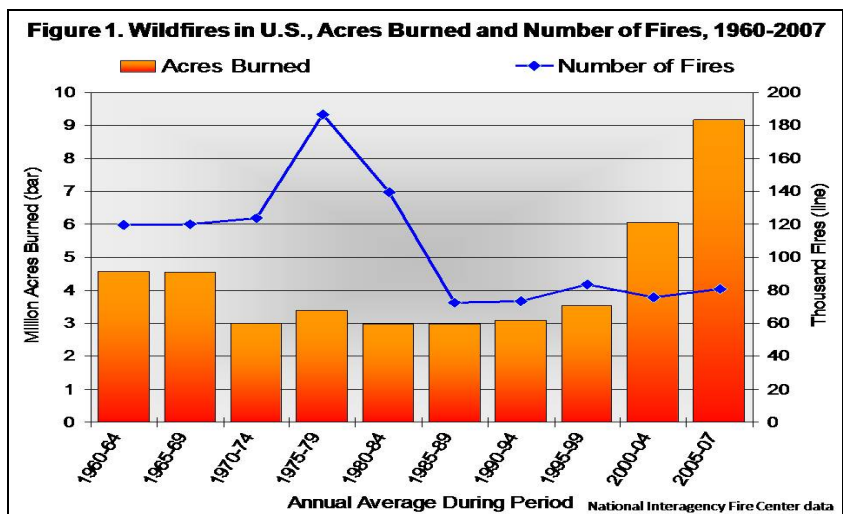
1. The SAF supports full implementation and funding of the National Fire Plan and the revised 10-year Comprehensive Strategy Implementation Plan as a means toward more effective wildfire risk management and suppression cost containment. Today’s increasingly complex set of fire-related problems calls for improvements using new science-based knowledge and tools resulting from research.
2. The SAF advocates policy changes leading to new federal funding mechanisms for wildfire suppression that recognize the overwhelming influence of relatively few large fires on overall suppression expenditures, as well as the inability of many public agencies to perform urgent hazardous fuel reduction projects, protect communities, and accomplish other needed resource management projects because budgeted funds have been diverted to wildfire suppression.
3. When community wildfire protection plans identify the need for hazard reduction projects on federal lands, the SAF recommends that federal agencies work closely with state and local governments and communities to implement these projects. Homeowners and private forest landowners have responsibility for protecting their property from wildfire, but even after taking appropriate actions property owners could become victims of wildfires that spread from adjacent federal lands or other ownerships.

* Italicized terms are defined in the **Definitions** section on page 6.

4. The SAF advocates the need to identify priority areas, including important watersheds and wildlife habitats, outside the wildland-urban interface (WUI) zone for wildfire hazard reduction through active treatment of forest fuels. Forest managers know how to create forest conditions that will reduce wildfire intensity and help protect communities and socially important forest resource values from the adverse impacts of wildfire.
5. The SAF supports *wildland fire use* (WFU) as an *appropriate management response* to wildfire occurrence but only when federal agencies have involved the public in developing the *fire management plans* necessary to authorize WFU, and when necessary fire management resources are available and deployed. The SAF believes fire management plans should be closely linked with land and resource management plans and used to help accomplish the objectives therein.
6. The SAF recommends changes in federal, state and local smoke management policies to encourage rather than discourage the use of *prescribed fire* and wildland fire use (WFU) under controlled conditions, thereby reducing future risk from large-scale emissions of pollutants due to uncontrollable wildfire.
7. The SAF advocates silvicultural practices and utilization of forest biomass to a) reduce stand density and accumulation of hazardous fuels, b) help achieve healthy forest conditions and protect watersheds and wildlife habitats, and c) reduce wildfire threats to homes, communities, forest resources, and firefighters (see SAF 2005a, 2005b).
8. The SAF encourages the adoption of performance measures that go beyond “acres treated” towards more outcome-based measures that focus on the reduced extent or severity of large, stand-replacing wildfires, protection of high-value resources, successful protection of communities at-risk, and appropriate management responses to specific incidents.

Issue

The overarching wildland fire management problem in the United States is that despite changes in policies and increases in fire suppression expenditures, the trend continues toward more extensive wildfires (Figure 1), displaying uncontrollable fire behavior and uncharacteristically severe effects (NIFC 2008). For thirty years (1970-1999) wildfires burned, on average, about 3 million acres per year; in 2000-2004, 6 million acres per year; and in 2005-2007, 9 million acres per year.



Since 2000, Alaska had its most severe fire season on record, Arizona, Colorado, and Oregon experienced their largest fires in a century, and California its second largest; while Minnesota and Utah had their largest fires on record. In 2006 and 2007, large, landscape-scale fires burned vast areas in Arkansas, Florida, Georgia, Oklahoma, and Texas, as well as many western states. Federal agencies spent upwards of \$2 billion fighting fires during 2000, 2006, and 2007.

Causal factors for the increasing trend to large-scale wildfires (Figure 1) include drought, lengthened fire seasons, and overabundant fuels; the importance of climate and weather on fire behavior highlights the urgency of reducing hazardous fuels to reduce long-term risks to human communities and ecosystems (Westerling et al. 2006). If fires escape initial efforts to contain them, large burned areas can result from administrative factors like reduced fire staffing, fewer elite crews trained to attack high-intensity wildfires, and inadequate resources for air attacks and logistical support (SAF 2008b).

Most wildfires occur in the southern states, followed by the western and eastern states. Since 1985 there have been as few as 48,949 and as many as 96,385 wildfires per year in the U.S., with an annual average of 77,000 fires (Figure 1). Most wildfires are quickly suppressed, but 2 to 3 percent escape initial attack and a few grow to become “problem” fires that are destructive, dangerous, and costly to control (NIFC 2008). The wildfire problem from an ecological perspective is whether fires occur within the characteristic range of intensity, severity, and periodicity for the ecosystem in question. From a social perspective, wildfire problems include threats to humans, their communities, investments in real property and infrastructure, and essential ecosystem services such as community watersheds.

Basis and Justification

The eight points in the **Position** section are supported by the following considerations:

1. National Fire Plan (NFP) and Ten-Year Implementation Plan (TYIP) – Following the 2000 wildfire season, which was the worst in 40 years, the collection of documents called the National Fire Plan (NFP) was initiated. The NFP’s intent is actively responding to severe wildland fires and their impacts to communities while ensuring sufficient firefighting capacity for the future (USDA/USDI 2008). The NFP embraces multiple goals, including hazardous fuels reduction, ecosystem restoration, and community assistance, in addition to wildfire suppression (WGA 2006). These policy goals are mutually reinforcing and have the potential to result in an ecologically, socially, and economically sustainable wildfire policy that can reduce overall costs and mitigate the long-term risk of wildfires for human communities and ecosystems (Stelman & Burke 2007). With the recognition that higher spring and summer temperatures and earlier snowmelt are extending the wildfire season and increasing the intensity of wildfires in the western states (Running 2006), funding for the full range of National Fire Plan activities and needed fire management research may not be adequate to reduce

long-term risks from severe wildfires to an acceptable level. It is substantially less expensive to thin forests and protect communities in advance than it is to put out fires and repair damage from them after the fact (Rowdabaugh 2007).

2. Federal budgeting for wildfire suppression – Only 1% of wildfires burn 95% of all burned areas, consuming 85% of total suppression costs (NASF 2007). The SAF (2008a) supports comprehensive reform of the federal budgeting process because it is a limitation on the ability to simultaneously prevent, prepare for, and suppress wildfires. Western governors and state foresters across the U.S. have called for new ways of funding emergency fire suppression that do not compromise needed investments in forest health, fuels management, and preparedness activities to make communities safer. One approach is a flexible emergency suppression spending account linked to rigorous cost containment controls and agency line officer incentives (Gramley 2005, NASF 2007, WGA 2007).
3. Community Wildfire Protection Plans (CWPPs) – Home and property owners have the primary responsibility for accepting risk and mitigating its impacts (Bushey 2007). A total of 51,612 communities have been identified as being at risk from wildfire; 4,762 were covered by a CWPP as of December 2007 and of these 3,814 had reduced wildfire risk (USDA/USDI 2007). CWPPs provide an effective basis for guiding land and resource management activities that can significantly reduce wildfire risks to communities. Projects stemming from CWPPs are meant to help prioritize wildfire mitigation approaches in each locale, including input to federal land management (Newman 2004, Steelman & Burke 2007), but such projects are not being implemented on the ground in meaningful numbers. CWPPs should be linked to federal land management project planning through a collaborative process with communities, and federal agencies should provide direction to line workers to put a priority on projects identified in CWPPs (Jensen 2006).
4. Prioritizing high risk areas outside of Wildland-Urban Interface (WUI) zones – A guiding principle of federal wildland fire policy is that firefighter safety is the first priority. Another is that “sound risk management provides the basis for all fire management activities” (USDA/USDI et al. 2001). Risk assessments can be used to prioritize areas needing treatment in ecological and social dimensions (see, e.g., Hessburg et al. 2007). Government auditors have reported that the federal land management agencies do not use risk assessment at either the landscape- or project-level scales to guide fuel treatment activities. Wildland fire management policy and planning should be linked to land and resource policy and planning to be effective over time (Williams 2005). This can be simplified by adopting the long-term perspective that in *fire-dependent* ecosystems, wildfire ignition is a certainty. Using the fire-return interval as a planning horizon would free managers to focus on reducing long-term risks by creating and maintaining the fuel conditions that would be preferred when the inevitable fire is ignited. To a great extent, the preferred conditions depend on what values the manager is trying to

provide for people and thus protect from the undesirable effects of wildfire. These values, determined through interaction with stakeholders, should be explicitly identified, spatially and temporally, in landscape- and project-level management plans.

5. Wildland Fire Use (WFU) – Following 34 firefighter deaths in 1994, in 1995 a new federal wildland fire policy recommended, among other things, expanding fire management activities beyond the dominant focus on suppression. *Appropriate management response* (AMR) was introduced and defined to include monitoring of “prescribed natural fires” that were allowed to burn to attain management objectives. Such events are now called *wildland fire use* (WFU) and are one of the three types of *wildland fire*, along with *wildfire* and *prescribed fire*. In 2001 this policy was reconfirmed (USDA/USDI et al. 2001). Integrated land and fire management plans should identify where WFU might be considered as an AMR to lightning-initiated fires. Training of line officers and education efforts aimed at various publics would help increase WFU implementation, as would greater flexibility for managers in determining when and how to use WFU (Black et al. 2008).
6. Smoke management – Particulate matter (soot) is the primary pollutant from wildland fire smoke. The tiniest carbon particles (PM_{2.5}) are the most abundant and are linked to numerous adverse human health effects (US-EPA 2006). Federal and state regulatory agency smoke management policies and regulations pose counterproductive barriers to use of prescribed fire (JFSP 2007). Used judiciously, fire can reduce hazardous fuel accumulations thereby reducing the risk and extent of conflagrations while improving ecosystem conditions. To the extent that prescribed fires modify subsequent wildfire behavior, emissions are reduced and overall air quality improved, with less impact on public health and fewer greenhouse gas emissions.
7. Silviculture and biomass utilization – Assessments of fire regime conditions have identified as many as 190 million acres at high or moderate risk of losing ecological components. Periodic fire or a fire surrogate (see Youngblood et al. 2007) is needed where fire risks are too high. The build-up of fuels in southern and western states creates the potential for stand-replacing fires beyond the capabilities of local resources. To reduce wildfire losses appreciably, fuel treatments need to be increased considerably from current levels. Major programs are needed to reduce fuel loads to characteristic levels and maintain them over time with silvicultural tools, including prescribed fire and thinning (Franklin & Johnson 2004, Gramley 2005, Williams 2005).

Annual fuels treatment and restoration activities have ramped up from about one million acres in 2000 to four million acres or more of federal land per year in 2004-2007 under the National Fire Plan (USDA/USDI 2007), but this is not nearly enough (Crandall 2006). For example, according to The Nature Conservancy, three to five times more management activity is needed to protect

ecological values on federal lands in Oregon, where the agencies are treating an average of 156,000 acres per year and 13.4 million acres of federal lands are at high or moderate risk (Hoeflich 2007). Similar increases are needed in most western and southern states. Federal agencies should be encouraged to fully utilize all available tools and authorities to reduce hazardous fuels, including provisions of the Healthy Forests Restoration Act of 2003, categorical exclusions from NEPA environmental analysis on small projects, and stewardship contracting authorities.

The barriers that inhibit silviculture and utilization of forest biomass activities on federal lands can be overcome to help sustain the values people expect from these lands. Barriers include interest group challenges to proposed projects, economics of removing and transporting low-value materials, lack of reliable supply to attract entrepreneurs to build processing facilities, and lack of funding. The removal of commercially valuable timber from federal lands is one approach that could help with funding NFP activities and is recommended where it is part of a silvicultural prescription to improve ecosystem conditions (see, e.g., Fiedler et al. 2004). Biomass removal would also help improve local economies in rural areas and provide a stable forest management workforce that could do double duty as trained firefighters.

8. Measuring performance by acres of fuel reduction treatments has created inappropriate incentives for prioritizing activities to help reduce the occurrence of large stand-replacing wildfires. The SAF is concerned that pressures for managers to meet targets for fuels reduction treatments are likely to be directed to “easy” acres (i.e., lowest costs and most accessible areas) to meet “acres treated” targets and reduce unit costs, rather than ensuring that funding is focused and prioritized on the most at-risk acres, resources, and communities (JFSP 2007). The Wildland Fire Leadership Council, in collaboration with the Western Governors’ Association Forest Health Advisory Committee, is working on new performance measures for each NFP task. Performance measures based on outcomes are more likely to produce successful results on the ground, although in the end fewer acres may be treated. The long-term result should be less money spent trying to suppress large stand-replacing wildfires and protecting communities.

Definitions

Appropriate Management Response (AMR). Pertaining to federal lands, any specific action suitable to meet Fire Management Unit (FMU) objectives. Typically, the AMR ranges across a spectrum of tactical options (from monitoring to intensive management actions). The AMR is developed by using FMU strategies and objectives identified in the *Fire Management Plan* (NWCG 2007).

A *wildland fire* that is not a *prescribed fire* requires an AMR, which can range from aggressively suppressing the incident as *wildfire* to managing the incident as a *wildland fire use* event, is guided by the strategies and objectives outlined in the

development of the Land and Resource Management Plan (L/RMP), reflecting land and resource values and objectives. The *Fire Management Plan* (FMP) outlines fire management activities and procedures to accomplish those objectives. The objective of a *wildland fire use* project is to obtain resource benefits whereas a *wildfire* is to be extinguished at minimum cost (USDA/USDI 2003, p.10).

Fire-Dependent. Plants and vegetation communities which have evolved adaptations such as a reliance on fire as a disturbance agent (NWCG 2007) [and] requiring one or more fires of varying frequency, timing, severity, and size in order to achieve optimal conditions for population survival or growth (Helms 1998).

Fire Management Plan (FMP). A plan which identifies and integrates all *wildland fire* management and related activities within the context of approved land/resource management plans. It defines a program to manage wildland fires (*wildfire*, *prescribed fire*, and *wildland fire use*). The plan is supplemented by operational plans, including but limited to preparedness plans, preplanned dispatch plans, and prevention plans. FMPs assure that wildland fire management goals and components are coordinated (NWCG 2007).

Wildland Fire. Any non-structure fire that occurs in the wildland, which is land other than that dedicated for other uses such as agricultural, urban, mining, or parks (updated from Helms 1998). It can also be defined as an area in which development is essentially non-existent, except for roads, railroads, powerlines, and similar transportation facilities. Structures, if any, are widely scattered (NWCG 2007). Three distinct types of *wildland fire* have been defined and include *wildfire*, *wildland fire use* and *prescribed fire* (USDA/USDI 2003):

Wildfire. An unplanned, unwanted *wildland fire*, including unauthorized human-caused fires, escaped *wildland fire use* events, escaped *prescribed fire* projects, and all other *wildland fires* where the objective is to put the fire out (NWCG 2007).

Wildland Fire Use (WFU). The application of the *appropriate management response* to naturally-ignited wildland fires to accomplish specific resource management objectives in pre-defined designated areas outlined in *Fire Management Plans* (NWCG 2007). Formerly called “prescribed natural fire.”

Prescribed Fire. A fire ignited by management to meet specific objectives (Helms 1998, NWCG 2007). More specifically, the deliberate burning of fuels under specified environmental conditions, confining the fire to a predetermined area and producing the fireline intensity and rate of spread required to attain planned resource management objectives (Helms 1998).

References

- Black, A., Williamson, M. & Doane, D. 2008. "Wildland Fire Use Barriers and Facilitators." *Fire Management Today* 68(1): 10-14.
- Bushey, C. 2007. "So Who's Responsible [for increasing fire suppression costs]?" *Wildfire* (May/June). Available online at http://wildfiremag.com/mag/whos_responsible_2/ [last accessed May 23, 2008].
- Crandall, D. 2006. "Hazardous Fuel Reduction Versus the 400-pound Gorilla." *Western Forester* 51(5):1-4. Available online at <http://www.forestry.org/pdf/sept06.pdf> [last accessed May 23, 2008].
- Fiedler, C.E., Keegan, C.E. III, Woodall, C.W. & Morgan, T.A. 2004. *A Strategic Assessment of Crown Fire Hazard in Montana: Potential Effectiveness and Costs of Hazard Reduction Treatments*. Gen. Tech. Rep. PNW-GTR-622. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 48 p.
- Franklin, J.F. & Johnson, K.N. 2004. "Forests Face New Threat: Global Market Change." *Issues in Science and Technology* (Summer) 20(4): 41-48.
- Gramley, M. 2005. *Fire in the South*. A Report by the Southern Group of State Foresters, Winder, GA. Available online at <http://dev.sanborn.com/swra/content/deliverables/Fire%20In%20The%20SouthREV042005.pdf> [last accessed May 23, 2008].
- Helms, J.A., ed. 1998. *The Dictionary of Forestry*. Society of American Foresters, Bethesda, MD.
- Hessburg, P.F., Reynolds, K.M., Keane, R.E., James, K.M. & Salter, R.B. 2007. "Evaluating Wildland Fire Danger and Prioritizing Vegetation and Fuels Treatments." *Forest Ecology and Management* 247: 1-17.
- Hoeflich, R. 2007. "Making Forest Restoration Work for Nature and People." Presentation at Western Forest Economists annual meeting, May 8, Welches, OR. Available online at http://www.masonbruce.com/wfe/2007Program/Hoeflich_1.pdf [last accessed May 23, 2008].
- Jensen, J. 2006. Testimony before the Subcommittee on Public Lands and Forests concerning the Healthy Forests Restoration Act implementation. United States Senate, 109th Congress, July 19, 2006. Washington, DC.
- Joint Fire Science Program (JFSP). 2007. "Smoke Management and Air Quality Roundtables Research Needs Assessment." Available online at http://www.firescience.gov/documents/Smoke_Management_Air_Quality/Smoke%20Roundtable%20Review%20Summarizations%20August%2013%202007.pdf [last accessed May 23, 2008].
- National Association of State Foresters (NASF). 2007. "Budget Reform: Federal Wildland Fire Suppression Costs." NASF Issue Paper. Available online at <http://www.stateforesters.org/files/2007.WildlandFireBudget.pdf> [last accessed May 23, 2008].
- National Interagency Fire Center (NIFC). 2008. "Strategic Placement of Treatments (SPOTS): Using a strategic placement of treatments to maximize the effectiveness of fuel and vegetation management with integrated landscape design." Available online at <http://www.nifc.gov/spots/index.html> [last accessed May 23, 2008].

- National Wildfire Coordinating Group (NWCG). 2007. *Glossary of Wildland Fire Terminology*. PMS 205. Available online at <http://www.nwcg.gov/pms/pubs/glossary/pms205.pdf> [last accessed May 23, 2008].
- Newman, C. 2004. "Community Wildfire Protection Plans from Four Angles: Communities, Fires, and Federal Lands." *Journal of Forestry* 102(6): 7.
- Rowdabaugh, K. 2007. Testimony before the Committee on Energy and Natural Resources concerning controlling wildfire suppression costs, United States Senate, 110th Congress, Jan. 30, 2007, Washington, DC.
- Running, S.W. 2006. "Is Global Warming Causing More, Larger Wildfires?" *Science* 313: 927-928.
- Society of American Foresters (SAF). 2005a. "Use of Silviculture to Achieve and Maintain Forest Health on Public Lands." Position Statement. Available online at <http://www.safnet.org/policyandpress/psst/silviculture.cfm> [last accessed May 23, 2008].
- Society of American Foresters (SAF). 2005b. "Utilization of Forest Biomass to Restore Forest Health and Improve US Energy Security." Position Statement. Available online at http://www.safnet.org/policyandpress/psst/Biomass_Utilization_Position_10-19-05.pdf [last accessed May 23, 2008].
- Society of American Forests (SAF). 2008a. "Wildfire Suppression Funding Legislation Critical." Position Statement on two congressional proposals. Available online at http://www.safnet.org/statement_flame_act.pdf [last accessed May 23, 2008].
- Society of American Foresters (SAF). 2008b. "Forest Management Solutions for Mitigating Climate Change in the United States." Final Review Report, April 14, 2008.
- Steelman, T.A. & Burke, C.A. 2007. "Is Wildfire Policy in the United States Sustainable?" *Journal of Forestry* 105: 67-72.
- U.S. Dept. of Agriculture, U.S. Dept. of the Interior & other agencies (USDA/USDI et al.). 2001. *Review and Update of the 1995 Federal Wildland Fire Management Policy*. U.S. Dept. of Agriculture, Forest Service; U.S. Dept. of the Interior, Bureau of Indian Affairs, Bureau of Land Management, National Park Service, U.S. Fish and Wildlife Service, and U.S. Geological Survey; Dept. of Commerce; Dept. of Defense; Dept. of Energy; U.S. Environmental Protection Agency; Federal Emergency Management Agency; and National Association of State Foresters. Available online at http://www.nifc.gov/fire_policy/history/index.htm [last accessed May 23, 2008].
- U.S. Dept. of Agriculture & U.S. Dept. of the Interior (USDA/USDI). 2003. *Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy*. U.S. Dept. of Agriculture – Forest Service; U.S. Dept. of the Interior, Bureau of Indian Affairs, Bureau of Land Management, National Park Service, and Fish and Wildlife Service; Available online at http://www.nifc.gov/fire_policy/pdf/strategy.pdf [last accessed May 23, 2008].
- U.S. Dept. of Agriculture & U.S. Dept. of the Interior (USDA/USDI). 2007. "Healthy Forests Report, FY 2007 Accomplishments." Available online at http://www.forestsandrangelands.gov/reports/documents/healthyforests/2007/fy2007_final_healthy_forests_report_12112007.pdf [last accessed May 23, 2008].
- U.S. Dept. of Agriculture & U.S. Dept. of the Interior (USDA/USDI). 2008. "National Fire Plan" website. Available online at <http://www.forestsandrangelands.gov/NFP/index.shtml> [last accessed May 23, 2008].

- U.S. Environmental Protection Agency (US-EPA). 2006. "Fact Sheet. Final Revision to the National Ambient Air Quality Standards for Particle Pollution (Particulate Matter)." Available online at http://www.epa.gov/oar/particlepollution/pdfs/20060921_factsheet.pdf [last accessed May 23, 2008].
- Westerling, A.L., Hidalgo, H.G., Cayan, D.R. & Swetnam, T.W. 2006. "Warming and Earlier Spring Increase Western U.S. Forest Wildfire Activity." *Science* 313: 940-943.
- Western Governors' Association (WGA). 2006. *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-Year Strategy Implementation Plan*. Available online at <http://www.westgov.org/wga/publicat/TYIP.pdf> [last accessed May 23, 2008].
- Western Governors' Association (WGA). 2007. "Western Governors Call for Stable, Long-term Funding for Wildfire Prevention." News Release, September 21, 2007. Available online at <http://www.westgov.org/wga/press/fire9-21-07.htm> [last accessed May 23, 2008].
- Williams, J. 2005. "Reducing Frictions in Policy to Sustain Fire-dependant Ecosystems." *Fire Management Today* (Fall) 65(4): 4-8.
- Youngblood, A., Bigler-Cole, H., Fettig, C.J., Fiedler, C. Knapp, E.E., Lehmkuhl, J.F., Outcalt, K.W., Skinner, C.N., Stephens, S.L. & Waldrop, T.A. 2007. *Making Fire and Fire Surrogate Science Available: A Summary of Regional Workshops with Clients*. Gen. Tech. Rep. PNW-GTR-727. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 62 p.