

PLENARY SESSION—Solutions

Working to Make the Clean Air Act and Prescribed Burning Compatible¹

Trent Procter²

Abstract: The Federal Clean Air Act of 1963 offers a challenge to the future of prescribed and natural fire programs in the United States. One aspect of maintaining healthy ecosystems for humans and natural resources is clean air. In addition, prescribed and natural fire programs are an important tool in maintaining healthy ecosystems, as well as satisfying the requirements of Federal and State legislation concerning home and structure protection, protecting endangered species, maintaining natural wilderness processes, providing for multiple use, and providing healthy forests and resources for future generations. As legislation to protect the environment grows deeper and more complex, land management agencies find themselves in the position of sorting out conflicts and attempting to manage within legal and publicly acceptable parameters. Presenting a solution to this issue of conflicting legislative mandates will require: the ability of land management and air regulatory agencies to move beyond their normal roles and reach the best position for responsible ecosystem management, including human health concerns; land management agency cooperation in developing a uniform position and resolution; the development of a technically strong and credible resolution that shows sensitivity to the public health issue; strong upper management communication to State and EPA management; and timely regulatory development.

The Federal Clean Air Act of 1963 has been very challenging to the future of prescribed fire programs in California. Rules for prescribed fire need to be developed to meet the requirements of the Clean Air Act of 1990. The practice of allowing fire to play its natural role in wildland ecosystems was endorsed in a 1990 General Accounting Office (GAO) report (GAO/RCED-91-42). The report states that attempts to exclude fire from these lands could lead to major unnatural changes in vegetation and wildlife and contribute to uncontrollable wildfires as the result of an accumulation of fuels. Fortunately, building compatibility between the Clean Air Act and prescribed fire is not a process that needs to begin, but one that needs to continue and be strengthened.

Understanding the legislative history of the Clean Air Act and its apparent conflicts with legislation that guides management of public land is helpful in proposing solutions that create a balance between air quality, ecosystem health, and human health.

¹An abbreviated version of this paper was presented at the Biswell Symposium: Fire Issues and Solutions in Urban Interface and Wildland Ecosystems, February 15-17, 1994, Walnut Creek, California.

²Forester, Sequoia National Forest, USDA Forest Service, 900 West Grand Ave., Porterville, CA 92357-2035.

Developing this balance is crucial to ecosystem management and will be the challenge of managing public lands in the future. As issues change, managers of public lands will be presented with the challenge of resolving conflicts between maintaining healthy ecosystems, people, and their economics.

Legislative History

Although the Clean Air Act of 1963 established air quality standards, it did not require State compliance. Amendments in 1967 required States to establish air quality standards but did not provide Federal minimums. In 1970, amendments to the Clean Air Act promulgated Federal standards for some pollutants as well as criteria for motor vehicles and fuels. In addition, one of the more critical components of the 1970 amendments was changing Federal responsibility for the Clean Air Act from the Department of Health, Education, and Welfare to the Environmental Protection Agency (EPA) (Baggett 1993). In 1970 Congress required the EPA to establish deadlines for compliance that, in the following 20 years, became a lesson in understanding the difficulty in achieving the standards. The 1977 amendments recognized the futility of a 1975 deadline and allowed States until 1987 to comply. The 1977 amendments focused on stationary industrial sources and introduced the Prevention of Significant Deterioration (PSD), providing the first opportunity to protect and maintain air quality in areas that were cleaner than the national standards. The amendments provided for Federal Implementation Plans (FIPS) if State Implementation Plans (SIPS) did not achieve compliance.

1990 Clean Air Act and Prescribed Fire

Because the 1987 national air quality goals were not attained, Congress enacted amendments to the Clean Air Act in 1990. The 1990 amendments address four broad categories that may affect the use of prescribed fire in California:

- Federal non-attainment area requirements for PM₁₀ (particulate matter ≤ 10 microns diameter, 1 micron = 10^{-6} m)
- Conformity
- Air Toxics
- Visibility

Federal Non-Attainment Area Requirements for PM₁₀

The 1990 amendments require dates for compliance of PM₁₀ and other Federal non-attainment pollutants based on

severity. Areas that are non-attainment for the Federal PM10 standard and able to demonstrate compliance by August 1994 were classified as moderate, and those areas unable to demonstrate compliance by August 1994 were classified as serious:

<i>Moderate Areas</i>	<i>Serious Areas</i>
Imperial Valley	Coachella Valley
Mammoth Lakes	Owens Valley
Mono Basin	San Joaquin Valley
Sacramento County	South Coast
Searles Valley	
San Bernardino County	

Air Pollution Control Districts classified as serious must develop revisions to the SIPS by August 1994 and demonstrate compliance by January 2001. Regulations to achieve compliance must be in place by August 1997.

The 1990 amendments require air pollution control districts not meeting Federal PM10 standards to address fugitive dust, residential wood burning, and prescribed fire. These elements of PM10 must be incorporated into State Implementation Plans revisions and subsequent regulations. Air pollution control districts are required to develop rules that incorporate Reasonable Available Control Measures (RACM) for moderate areas and more stringent Best Available Control Measures (BACM) for serious areas. These measures must be developed for fugitive dust, residential wood burning, and prescribed fire following EPA recommendations. The National Wildfire Coordinating Group participated in the EPA RACM/BACM guidelines.

Conformity

The conformity portion of the 1990 amendments, as well as EPA regulations that became effective in January 1994, require Federal agencies in Federal non-attainment areas to demonstrate that agency activities conform to SIPS. California's plan is a compilation of the States' air pollution control district plans.

In Federal non-attainment areas users of prescribed fire must quantify emissions to determine conformity. Projects may be analyzed in a collective programmatic plan if emissions are predictable or as a part of individual project plans. De Minimus levels, below which conformity determinations are not required, are set at 70 tons annually for serious areas and 100 tons annually for moderate areas.

Air Toxics

Perhaps the most uncertain potential effect of the 1990 amendments on prescribed fire may be the portions of the legislation that deal with toxics. The amendments require the EPA to develop standards for about 200 toxics. Some of these toxics, such as benzene and aldehydes, can be found in wildland smoke. Little progress has been made on toxic regulation development, but this is one element in the near future with potential to impact prescribed fire users.

Visibility

An important visibility-related element in the 1990 amendments is the formation of the Grand Canyon Visibility Transport Commission. This development reflected a Congressional desire to protect some of the nation's most pristine visibility. Recent research indicates that in addition to impact from nearby industrial sources, polluted air masses from California and neighboring western states also impact visibility (Malm and others 1990, Sisler and others 1989). Under certain meteorological conditions these air masses may travel hundreds of miles from large urban areas west of the Colorado Plateau. The Commission is charged with developing management options for all pollutants and sources that contribute to visibility impairment, including forest management activities. The Commission is expected to have draft recommendations prepared by June 1995 and a final report to EPA by November 1995. EPA must act on the final recommendations by May 1997, and California will be required to implement the EPA requirements by May 1998.

Working Toward Solutions

Solutions should be balanced. Prescribed fire users need to recognize air as a resource important to ecosystem function, visibility, and human health. Regulators need to understand that air is but one element of ecosystems that require management to provide for the welfare of the 30 million citizens of California.

Solutions to preserve the use of prescribed fire and reduce the PM10 contribution as a result of prescribed fire include:

- Prescribed fire user coordination.
- Technically strong resolution.
- Communication.
- Timely interaction.
- Upper management awareness.
- Public awareness.

Prescribed Fire User Coordination

Prescribed fire users should coordinate uniformity in proposals to reduce emissions, responses to draft regulations, and communication of the use and benefits of prescribed fire in California. Regulators will be much more receptive to incorporating a well coordinated multiple agency position into planning documents and rules. Well-coordinated input develops credibility and political strength as opposed to putting regulators in a position that requires technical judgments they may not be qualified to make.

A working group is recommended at the State/regional level to develop a framework for regulatory positions that ensures continuity of regulations and programs on broad ecosystem scales. The risk is that prescribed fire management options might vary dramatically between California's numerous air pollution control districts. Although statewide

coordination is important, the vast majority of effort is required within individual air basins and air pollution control districts. After all agencies and organizations that may use prescribed fire are carefully identified, working groups need to be established. Interagency coordination groups have been established in the South Coast, San Joaquin, and North Coast air basins.

Communication

As prescribed fire user coordination groups develop, a strong communication link with respective air quality regulators will need to be established. Air regulatory agencies need to account for the interrelationship of fire with all ecosystem elements including air (Bagget 1993). This might be accomplished by establishing contacts or developing periodic meetings with PM10 planning staff. Communication should be frequent and strong enough to create an awareness and appreciation for the needs and objectives associated with improving air quality as well as prescribed fire. Dialogue might lead to a memorandum of understanding that clearly defines expectations in more detail than planning documents and rules. In addition, this would provide the framework for continuity, despite changing staff. At the State level, the recently formed California Air and Smoke Council will provide an opportunity for information exchange. Those participating have included the USDI Bureau of Land Management, USDI National Park Service, USDA Forest Service, California Division of Forestry, Environmental Protection Agency, California Air Resources Board, California Air Pollution Control Offices Association, and representatives from various air pollution control districts. This group will propose recommendations to meet regulatory compliance while maintaining the option for use of prescribed fire.

Technically Strong Resolution

Prescribed fire users need to improve their ability to quantify and manage emissions (Brown 1990). Although research needs should be clearly outlined, prescribed fire users should not hesitate to move forward with professional judgments and assumptions using the best information available. For instance, prescribed fire users can:

- Estimate emission factors, if unknown, based on similar fuel types.
- Estimate total emissions generated.
- Apply techniques to reduce and disperse emissions.
- Monitor concentrations of PM10 at sensitive receptors.
- Develop an emissions inventory.

The existing limitations must also be distinguished. Prescribed fire users cannot:

- Qualify natural or pre-European emissions in California.

- Produce reliable emission factors for all vegetation types.
- Quantify emission reduction techniques.
- Model for 24-hour concentration and predict transport in complex terrain.

Air quality analyses procedures as well as emission reduction techniques need to be institutionalized in agency training programs in order to meet expectations of air quality regulators. Additional research is necessary to resolve regulatory conflicts associated with emission production, combustion efficiency, and smoke management (Brown 1990).

Timely Interaction

In 1994, planning efforts and regulatory development associated with PM10 are moving forward in California at an extremely fast rate. Programs should not be interrupted, however, while the issue of conflicting laws and mandates is debated. Air pollution control districts are thus seeking early involvement to avoid conflicts with rule implementation.

Air districts will likely be conducting California Environmental Quality Act (CEQA) analysis with planning effort and/or rule development, providing an opportunity for evaluation of regulatory impacts on management of public land and public safety. Prescribed fire users need to understand the regulatory process. They need to evaluate the timing of efforts and to whom they should be directed.

Upper Management Awareness

Many Federal, State and county agencies in California are preparing to increase prescribed fire activities for a variety of politically sensitive reasons including recent catastrophic wildfires, spotted owl habitat needs, and a backlog of fire required to create more natural vegetation age classes. The relationship to sensitive issues implies a need to keep management briefed on the status and potential impacts of impending air quality regulations on prescribed fire programs.

Public Awareness

Most public agencies that utilize prescribed fire have developed some level of public education designed to explain the purposes of burning and notify people sensitive to smoke. In light of current regulatory action public awareness efforts should be increased in order to provide the public with enough information to understand the balance between air quality and prescribed fire. Given the importance of prescribed fire programs, agencies should review and revise every public awareness opportunity. In addition to taking advantage of existing public education programs, agencies should be prepared to be very visible and look for opportunities to provide presentations at public meetings associated with air quality regulatory development.

Conclusions

Regulations associated with the requirements of the Clean Air Act amendments of 1990 are developing rapidly to satisfy deadlines developed by EPA. The rationale and process to ensure that the Clean Air Act is compatible with prescribed fire are available. Solutions and success are rooted in communication, the ability to compromise, and the development of a technically credible method for analyzing and reducing emissions.

References

- Baggett, Arthur G. 1993. **Only Congress can prevent forest fires: a comment on prescribed and natural fire programs and the Clean Air Act.** San Joaquin Agricultural Law Review: 3(197): 221-246.
- Brown, James K. 1990. **The future of prescribed fire: concerns and knowledge needs.** In: Proceedings of the 10th Conference on fire and forest meteorology; 89-96.
- Sisler, J.F.; Malm, W.C.; Gebhart, K.A. 1989. **Sources of ions producing acidic rain and visibility impairment at Grand Canyon, Arizona.** In: Proceedings of the 81st annual meeting of the Air Pollution Control Association.
- Malm, W.C.; Gebhart, K.A.; Henry, R.C. 1990. **An investigation of the dominant source regions of fine sulfur in the western United States and their areas of influence.** Atmospheric Environment 24A: 3047-3060.