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HEARING ON THE USE OF FIRE AS A MANAGEMENT TOOL AND ITS RISKS AND BENEFITS FOR FOREST HEALTH AND AIR QUALITY

HEARING

BEFORE THE

COMMITTEE ON RESOURCES
HOUSE OF REPRESENTATIVES

ONE HUNDRED FIFTH CONGRESS

FIRST SESSION

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CONTENTS

	Page
Hearing held September 30, 1997	1
Statement of Members:	
Chenoweth, Hon. Helen, a Representative in Congress from the State of Idaho	1
Additional material submitted for the record by	85
Additional material submitted for the record by	140
Explanation of photographs	140
Miller, Hon. George, a Representative in Congress from the State of California, prepared statement of	3
Vento, Hon. Bruce F., a Representative in Congress from the State of Minnesota	2
Statement of Witnesses:	
Babbitt, Hon. Bruce, Secretary, U.S. Department of the Interior	5
Prepared statement of	63
Browner, Hon. Carol M., Administrator, U.S. Environmental Protection Agency	7
Prepared statement of	74
Dennison, William, Plumas County Supervisor, Board of Supervisors, Quincy, California	45
Prepared statement of	107
Glickman, Hon. Dan, Secretary, U.S. Department of Agriculture	9
Prepared statement of	60
Mutch, Robert, Missoula, Montana	47
Prepared statement of	116
Pearson, Robert L., Radian International LLC, Denver, Colorado	49
Prepared statement of	129
Peterson, Earl, Florida State Forester, Chairman, National Association of State Foresters Fire Committee, Tallahassee, Florida	43
Additional material supplied:	
Davis, Stanley B., prepared statement of	95
National Association of State Foresters, Washington, DC, prepared statement of	99

HEARING ON THE USE OF FIRE AS A MANAGEMENT TOOL AND ITS RISKS AND BENEFITS FOR FOREST HEALTH AND AIR QUALITY

TUESDAY, SEPTEMBER 30, 1997

HOUSE OF REPRESENTATIVES,
COMMITTEE ON RESOURCES,
Washington, DC.

The committee met, pursuant to notice, at 10:13 a.m., in room 1324, Longworth House Office Building, Hon. Helen Chenoweth [acting chairwoman of the committee] presiding.

STATEMENT OF HON. HELEN CHENOWETH, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF IDAHO

Mrs. CHENOWETH. The Committee on Resources will come to order.

I just want to say that these are the times that try men's souls toward the end of the year when the work on the House floor, as you remember, will scare the ducks off the pond, and so, therefore, the committees are scarcely filled and a lot of work is going on concurrently. With this hearing and actual floor work, we will try to move as quickly as we possibly can through this very interesting hearing.

And, as you know, the committee is meeting today to hear testimony on the use of fire as a management tool and its risks and benefits for forest health and air quality. Under rule 4(g) of the committee rules, any oral opening statements at the hearings are limited to the Chairman and the Ranking Minority Member, and this will allow us to hear from our witnesses sooner and help Members keep their schedules as well as help the witnesses keep their schedules. Therefore, if other Members do have statements, they can be included in the hearing record under unanimous consent.

We're very, very pleased to have with us Secretary Glickman, the Honorable Carol Browner, and Secretary Babbitt.

Today the Committee on Resources convenes for an oversight hearing on the uses of fire as a management tool and impacts of the Environmental Protection Agency's national ambient air quality standards on that use.

It is clear today that our past success in suppressing forest fires has led to unintended consequences, and I just want to say, it's my personal—very strong personal—feeling, as chairman of the Forests and Forest Health Subcommittee, that what we're dealing with today in our forests is not a result of any one administrative policy.

These problems began in probably the 1960's; they have been continuing through various administrations to the point that we are at a critical mass now. And, so as we proceed through this hearing, I just wanted to make sure that that was on the record—that we need to work together to solve the problems not just in the forests, but also in the air.

Despite the continued improvement in our fire-fighting capabilities and the seemingly endless budgets for fighting fire, the acreage burned and the intensity of the fires has increased dramatically in recent years. Scientists tell us that this is due in part to the increase growth of shade-tolerant trees that have grown up in the understory of otherwise fire-tolerant forests. And then these smaller trees act as fire ladders to fuel intense wildfires that cannot be easily suppressed and cause a tremendous amount of damage to forest resources. Clearly, we need to take action to reduce the fires' danger in our forests.

The Community Protection and Hazardous Fuels Reduction Act of 1997, which I introduced earlier this month, is designed to address this need in the highest priority areas: the wildland-urban interface. My bill provides the Forest Service a much-needed new tool for dealing with this critical concern. Importantly, a problem that has taken decades to develop can only be resolved by using all the tools in the agency's tool kit.

Secretary Babbitt has taken the lead on promoting the increased used of prescribed fire on Federal lands; and I understand the Federal land management agencies intend to increase the acreage they burn each year using prescribed fire by as much as five-times.

And at the same time, our Administrator Browner, just a few months ago, issued new stricter national ambient air quality standards in the proposed rule to reduce regional haze which appear to conflict with the land management agencies' plan to increase burning. As I understand it, these rules will allow for smoke from natural wildfire, but will restrict the land manager's ability to use prescribed fire.

At a time when the risk of catastrophic fire is so severe, I question our ability to increase burning with out first reducing the heavy fuels in our over-crowded forests. Forest Service Chief Mike Dombeck said 40 million acres of national forests are at high risk of catastrophic fire and we need to act responsibly to improve the conditions of these lands and ensure that our fire management policies do not make the situation even worse. But it remains to be seen whether this is possible under the constraints of the new and proposed air quality standards.

The Chair now recognizes Mr. Vento for an opening statement.

STATEMENT OF HON. BRUCE F. VENTO, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MINNESOTA

Mr. VENTO. Thank you, Madam Chair. I ask unanimous consent that all Members have opportunity to place their opening statements in the record. I put Mr. Miller's statement in the record, without objection, Madam?

Mrs. CHENOWETH. Without objection so ordered.

[The statement of Mr. Miller follows:]

STATEMENT OF HON. GEORGE MILLER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

The subjects of forest fire management and clean air are of significant concern to many citizens in my home State of California. the fact that we have two cabinet Secretaries and the EPA Administrator here today is ample evidence of the priority given to these matters.

Frankly, this administration inherited a huge mess in the western forests. For years, the professional foresters assured us that clearcutting the biggest and most mature trees was the best way to manage public forests. While those polices may have served the short-term interests of the commercial loggers, they have fundamentally changed the nature of our forests. Instead of fire resistant old-growth trees, we now have too many forests dominated by small diameter, densely packed trees.

Compounding the problem was the "Smokey the Bear" policy of putting out every forest fire. Fire is part of the natural system in western forests and the result of decades of fire exclusion, ironically, is that we now face a situation where so much fuel has built up that wildfires tend to be larger and more severe.

Some see the threat of forest fires as an excuse to turn back the clock and let the loggers loose on forests. But the administration is on the right track in increasing the use of preventative treatments such as prescribed burning. We have spent over a billion dollars in just one year fighting fires and fuels treatment prevention efforts are much more cost-effective.

Instead of building new roads and subsidizing timber sales in controversial roadless areas, we ought to be using these taxpayer dollars to make a greater investment in fuels reductions, especially in the roaded areas near communities.

When it comes to the interplay of the new EPA Clean Air standards and prescribed burning, it appears to me that we can and should have both. Without controlled burning, the alternative is greater carbon emissions from high intensity wildfires.

I look forward to today's testimony and welcome our distinguished panel of witnesses to the Committee.

Mr. VENTO. Madam Chair, I appreciate you calling the hearing, and especially from hearing from those Secretaries: my good friend, Dan Glickman, a classmate, Secretary of Agriculture; Carol Browner, and of course, Secretary Babbitt. I very much appreciate you being here at this hearing.

I think that the chairwoman has indicated her legislation which she has advanced, and there are other proposals advanced along these lines that seem to have as a goal to increase or justify increased harvest of trees in the National public domain and in the national forests. I think we can get very concerned about that because this type of activity may or may not be related to some of the dilemmas that we face in terms of managing forests.

I think historically with the revisiting and revamping of forest management practices and harvest practices it's become clear that the reduced revenues have impinged or affected the ability of the land managers to have some of the revenue that they need to manage these lands. Under some of the Knudsen–Vandenberg and other laws that exist, we face real challenges with regards to that today. As a matter of fact, the amount of prescribed burning that occurs is very much limited by the dollars available to do that. I think, between BLM and the Forest Service, it is something less than $50 million is principally aimed at that type of activity.

At the same time, of course, we're adding hundreds of millions of dollars to other activities which are geared to assist in terms of timber harvest. I think that some revisiting of that; if the real goal here is in terms of trying to reduce fire, than we ought to address it through that. Plus, I think, a goodly amount of money, nearly a billion a year at least in some of the bad years, has been used in

terms of forest fighting fire. And again, if we can get ahead of the curve here, we can shift some of those dollars, if we have some good years, some years that aren't so dry, to, in fact, try and deal with avoiding the sort of catastrophic fires that all of us recognize as being a serious problem.

But this isn't the problem, really, of these land managers that are before us today, Madam Chair. It's a problem that's been going on because of 50 years of policy that was attempted to try and control these fires; in many respects doing so. When they failed then, the fires end up in being very catastrophic. So, it's really been based on a new understanding and a recognition of knowledge.

What we're supposed to do in this particular forum, incidently, is to translate new information, new knowledge into public policy. That's the ideal that we all have.

But we're faced with certain circumstances, given the history and given the practices that have occurred in the past, that have compounded many of these issues that we have today. And, obviously one of the issues that have come up—and I guess some have relished the fact that there could be, in fact, a problem between air quality goals and trying to manage prescribed burns in the forest. Clearly, I think most of us recognize an inability to, in fact, deal with some of the type of catastrophic fires that are reminiscent—like the Yellowstone fire. We've spent, you know, hundreds of millions of dollars, or something of that nature, and still have not been able to have any positive effect in terms of the outcome.

And I think the gentlewoman has mentioned the urban interface, and of course, this is something where we really need to have if we really want to save money in terms of fire-fighting. We need a lot more cooperation in terms of how the counties and States regulate construction of sites that are within our forests and within the public domain. And it's clear that we can't rewrite history in terms of people making tens or hundreds of thousands of dollar investments in these urban-forest interface areas, but we can ask States to begin to address this. In fact, the Forest Service and BLM itself, under some policies have actually promoted that. There are policies that go back with regards to leasing, where they have actually promoted some of these long-term leases which in fact compound the effort to manage the forest and run the risk of safety and health problems.

So we have to deal with the safety and health issue today, but clearly, we need to expect the States and counties, as our partners, to work collaboratively with us to avoid further conflicts of this nature. It gets into urban sprawl; it gets into all sorts of questions—policy questions, quite frankly—that I think, that for the most part are not easy answers.

But I understand that the leadership being provided by Secretary Babbitt, by Secretary Glickman, and by Director Browner are very much appreciated from my standpoint in terms of trying to come to grips with this in a contentious and political environment. So, I appreciate your effort; look forward to your testimony; look forward to working with my colleagues and with the administration on this issue.

Thank you, Madam Chair.

Mrs. CHENOWETH. Thank you, Mr. Vento.

I agree with you in part.

[Laughter.]

Mr. VENTO. I'll have to recheck it.

[Laughter.]

Mrs. CHENOWETH. That always worries you, doesn't it?

I want to let you know that we were just called for another vote. It's just one vote, and I'm going to just temporarily adjourn the committee immediately—recess the committee, immediately—to go take the vote and come right back. There's just one vote. And, then they promise us that there won't be another vote for 30 minutes to an hour.

[Laughter.]

So this Committee is temporarily recessed.

[Recess.]

Mrs. CHENOWETH. The Committee will come to order.

I am very pleased to introduce our panel of first witnesses: the Honorable Bruce Babbitt, Secretary of the U.S. Department of the Interior; the Honorable Carol Browner, Administrator, U.S. Environmental Protection Agency, and the Honorable Dan Glickman, Secretary, U.S. Department of Agriculture.

Before we continue, I'd like to explain that I intend to place all witnesses under oath. And, this is a formality of the Committee that is meant to ensure open and honest discussion and should not affect the testimony given by witnesses. I've been assured by my staff that the witnesses were all informed of this before appearing here today and they have each been given a copy of the Committee rules. And, so, if you would please stand and raise your right hand.

[Witnesses sworn.]

We'd like to proceed with testimony from——

Mr. FARR. Madam Chair?

Mrs. CHENOWETH. Yes?

Mr. FARR. Are we going to do the same thing for Members of the Committee?

Mrs. CHENOWETH. I think we've had this discussion before, and I think you understand the rules of the Committee.

I'd like to proceed with testimony from the Honorable Bruce Babbitt. Mr. Babbitt?

STATEMENT OF THE HONORABLE BRUCE BABBITT, SECRETARY, U.S. DEPARTMENT OF THE INTERIOR

Secretary BABBITT. Madam Chairman, Committee Members, I appreciate the chance to be here and to be with my colleagues Dan Glickman and Carol Browner. The work that we have done together over the last several years, I think, speaks for itself. And I emphasize "together" because, I think one of the most unique features of the administration policy that we will discuss briefly, is that, in fact, it is administration policy which the three of us have worked out together and with many of our other colleagues.

Madam Chairman, the problem that we come here today to discuss is well understood. The fact is that in many, if not most, of the inland forests of the West, we have seen large changes in the composition and structure of forests: a shift in species composition; in stand structure, characterized in most cases by considerable crowding and many more trees per acre than historically. With

those species shifts and stand-structure shifts have come problems of: disease; insect infestation; stunted growth as trees compete for nutrients, and water which is sometimes in scarce supply, and, of course, the fire hazard issue that we know so well.

The really important study of these issues was done in the Blue Mountains right across from the Idaho border by Professor Nancy Langston. And for those who are interested in pursuing these issues, I highly recommend that book. She makes it crystal clear, as you suggest, Madam Chairman, that there are related problems and they go clear back to the 19th century: improper logging practices, over-grazing, and of course, a history of fire suppression. The three of them together have produced the kinds of fire hazards that we now see.

Now, the administration response began several years ago in the form of the Federal wildland fire management policy and program review, signed off by myself and Secretary Glickman, and concurred in by Administrator Browner. The principal conclusion of that is, of course, that we must take management and administrative steps to restore the natural fire cycle. These forests in pre-settlement conditions were healthy and vigorous precisely because they co-evolved with rather regular, less-intense fires that kept them thinned out and healthy and prevented the situation—the fuel buildups—which leads to these catastrophic fires that we have been seeing.

Now, this document has since then been translated into budget changes which Secretary Glickman and I, on behalf of the administration, have presented to the Appropriation Committees, and which are, I am pleased to tell you, now being acted favorably upon by the Appropriation Committees; and we can discuss those to the extent that you chose to do so. I just want to express my gratitude to the Appropriation Committees for helping us work through the necessary adjustments in fire accounts and fire funding to get on with the implementation of the policy that is reflected here.

Lastly, Madam Chairman, I would urge the Committee, as you begin looking at these issues, to have a look at not just the paperwork, but at what's actually happening out on the ground. Because these administrative changes are now well underway and they are working exactly as predicted, and I think that the success stories really merit your careful attention.

I would leave you, briefly, with three examples. The first one, of course, picked absolutely at random, is on the Boise National Forest in Idaho, where successive forest supervisors have demonstrated strikingly favorable effects with prescribed fire. The foothills fire in 1992 can be compared to the Tiger Creek prescribed burn, which effectively stopped the wildfire. Another nice example: the cottonwood prescribed burn-up above Boise which effectively stopped the 1994 Star Gulch fire.

In California, the California Department of Forestry, the Federal agencies, have a wonderfully developing experience in the Sierra Nevada that I would call your attention to—particularly interesting because the Federal agencies which are managing a new regime are doing that in cooperation with the San Joaquin Air Quality District. It's an example of how we've actually handled these air quality issues out on the ground.

Lastly, I would call your attention to a land management project at Mount Trumbull, north of the Grand Canyon in Arizona, where Northern Arizona University and the BLM have done a fire-driven, mechanical-thinning fire restoration project which is producing merchantable, pole-size ponderosa pine for a re-tool mill in Fredonia, Arizona. I single that one out, in conclusion, because it is my belief that the restoration of the landscape must be fire-driven; that mechanical-thinning has a role to play which depends very much upon the specific landscape, and there are, at least in this case and some others, some economic benefits that can be derived from ecologically planned, fire-driven restoration.

Madam Chairman, I see the red light, I appreciate your indulgence in my running overtime, and thank you very much.

[The prepared statement of Secretary Babbitt may be found at end of hearing.]

Mrs. CHENOWETH. Thank you, Mr. Secretary. I don't know whether it's the power of your testimony or what, but is that table tilted? Or, is it?

[Laughter.]

Ms. BROWNER. Staff requested it.

Secretary GLICKMAN. We're trying to get as close as we can——

[Laughter.]

Mrs. CHENOWETH. Thank you, sir.

The Chair now recognizes Ms. Browner.

STATEMENT OF THE HONORABLE CAROL M. BROWNER, ADMINISTRATOR, U.S. ENVIRONMENTAL PROTECTION AGENCY

Ms. BROWNER. Thank you, Madam Chairman, and Members of the Committee for inviting us here today. I am pleased to join my colleagues, Secretary Babbitt, Secretary Glickman, in this discussion on wildland fire management.

Let me say, right at the outset, that the Environmental Protection Agency recognizes the importance of fire as a natural part of the forest and grassland ecosystem management. Fire releases important nutrients into the soil; they reduce undergrowth and debris on the forest floor. Fire allows trees and grasses to be more healthy. We know that fires—particularly planned, prescribed, managed fires—have been, and will continue to be, an integral part of keeping forests and our grassland healthy, and that they help prevent the larger, unplanned, catastrophic wildfires that pose serious threat to public safety.

I want to be very clear about EPA's position. The primary reason for coming here today is to assure this Committee, all of the Members, that EPA's newly updated public health air quality standards for ozone, for particulate matter, will not—let me be clear about this—will not hinder the government's ability to implement sound fire management programs. It is just that simple.

These new standards, these public health standards, will not cause prescribed fires to be banned or reduced. They are fully consistent with measures already underway that are designed to minimize any impact these fires might have on air quality and public health.

These standards are about protecting the public's health. They represent the most significant step we have taken in a generation

to protect the American people, most particularly our children, from the health hazards of air pollution. Taken together, they will protect 125 million Americans, including 35 million children, from the adverse health effects of breathing polluted air. They will prevent approximately 15,000 premature deaths, about 350,000 cases of aggravated asthma, and nearly a million cases of significantly decreased lung-function in children.

Clearly, the best available science shows us that the previous public health air standards were not adequately protecting Americans from the hazards of breathing polluted air. Revising these standards, as we did this summer, will bring enormous health benefits to the Nation.

Now, obviously, prescribed fires, natural fires can cause smoke-containing particles that above certain levels would fit the definition of fine particles which would pose a threat to human health. I think what some people have done, unfortunately, is taken this to mean that complying with the public health—the more protective air quality standards—will require a reduction, or even an outright prohibition, of managed fires on public land. That is simply not the case. I have heard—it is a rather tantalizing argument that's been put forward by some, I guess you could summarize it as: EPA air quality standards are bad for forests. Not true; that's not the case.

In terms of natural fires, which do occur, on the days that those occur, the data, the air quality data for those days is excluded. It is thrown out of the system. It is not a part of how we evaluate whether or not a particular community's air meets public health standards.

In terms of prescribed fires, we think they are an essential—a valuable—tool, and we would never allow our air standards to inhibit sound forest management practices designed to reduce the danger of wildfires to humans and to property.

Madam Chairman—Chairwoman—we can have both: clean air, public health protection, and sensible forest agricultural fire management. We do not have to choose.

We have worked very closely with the Department of Interior, Department of Agriculture, to carry out their policies to allow for the sensible implementation of prescribed burning practices. We have agreed on how best to manage these so they do not contribute to air quality problems. We will continue with each of these departments, with State and local officials, as we see these policies implemented.

We can accomplish both objectives and protect the public health. We can use fire as a sensible management tool.

We look forward to answering any questions the committee may have.

[The prepared statement of Ms. Browner may be found at end of hearing.]

Mrs. CHENOWETH. Thank you very much.

The Chair now recognizes the gentleman from Kansas, the Honorable Dan Glickman.

STATEMENT OF THE HONORABLE DAN GLICKMAN, SECRETARY, U.S. DEPARTMENT OF AGRICULTURE

Secretary GLICKMAN. Thank you, Madam Chairman, and it's an honor for me to be here, back with some of you who I served with for so many years.

I would like to introduce the Chief of the Forest Service is with me, Mike Dombeck, behind me; and Mary Jo Lavin, who's National Director of Fire and Aviation at the Forest Service. They are very knowledgeable about some of the specifics that you might have.

And, I have a longer statement and I would ask that it be included in the record as a whole, and I'll just make a few comments.

Mrs. CHENOWETH. Without objection.

Secretary GLICKMAN. One is to tell you that I have enjoyed the relationship with Secretary Babbitt, the relationship between the Department of the Interior and our Department. And, there is an era of cooperation and collaboration which I don't think existed in years past, and I think it is important that we have a national policy, not a USDA policy or a Department of the Interior policy. I believe that exists.

I also would like to say, and I've heard this said before, that our fire policy is not—and I repeat "not"—to simply put a match to the forests. Our policy involves: mechanical forest treatment, budget-structured changes, new planning priorities, personnel training, new research, carefully planned prescribed burns, and dozens of other initiatives to meet this challenge. And, I would like to echo Secretary Babbitt's views that the Congress has been most helpful in terms of giving the resources necessary to do this kind of effort.

Four basic points: No. 1, we cannot eliminate fire totally from the world, but we must manage it. As you know, and everybody in this room, that fire is a natural part of the ecosystem; it's impossible to totally fireproof a forest, so what we have to do is make a forest's condition such that a fire does not get out of control.

Fire data shows that fires are getting more frequent, more intense. So the idea is to do fuels treatment as opposed to fire suppression, not only because we keep a forest from burning down, but the costs are extraordinarily. The Chief tells me that the costs are about 10 times more to do suppression than to do fuels treatment, anywhere between $40 per acre for fuels treatment to $400 an acre for suppression. And as the Chief has stated to you before, over nearly 40 million acres need fuels management in our forest system and in our total system. So that's the first issue.

The second issue is: The solutions have to be comprehensive and sophisticated. As Secretary Babbitt says, they involve a lot of things: Mechanical fuels treatment, thinning, and harvesting are important. We estimate that nearly one-half of that 40 million acres needs some form of mechanical fuels treatment in order to get into a situation where other forms of treatment are useful. The budget structure needs to be changed to facilitate appropriate treatment, more fuels treatment, and in fact, we are working on that. Employee training has been changed to meet new challenges, and land management planning addresses new understandings in fire ecology which we are learning.

Third, is: Solutions are being implemented on the ground today. The acres of prescribed fire treatments nearly doubled in 1997 from

1996, more than meeting the targets that the Forest Service, and the folks at the Department of the Interior had planned upon. The area of fuels treatments have doubled from 1992. Safety policies have reduced injuries and fatalities since the catastrophic fires in the early 1990's. And, research programs, particularly our Research Forest Products Lab in Madison, Wisconsin, have refocused on many aspects of fire management as well as alternative uses for some of the wood products that have had not a lot of value in times past.

The fourth point I would make is: The collaboration is there. There is effective collaboration with EPA on air quality issues, and Interior and Agriculture are working together to coordinate policies. We are also working with State foresters, western Governors, local units of government; we provide assistance, including monetary assistance, to local firefighters in order to facilitate more efficient and effective management.

And, I would finally point out, which you already know: When there are fires, we do not fight these fires as independent agencies. There is a fire center, in which the fires are fought as if there is a war on. And the battle is to extinguish that fire; and the soldiers in that fire are all the elements of the Federal and State and local governments working under a management scheme that's appropriate to that particular fire. And, you know, fire knows no boundaries, nor should its organization know any one chief, so to speak, to run the fire. It's based upon who has the knowledge, where it's located, and who is involved. And, I think that's one of the reasons why we've really made some successes in the last two or 3 years that we want to continue forward.

And I thank you very much.

[The prepared statement of Secretary Glickman may be found at end of hearing.]

Mrs. CHENOWETH. Thank you, Mr. Secretary, and I certainly am pleased with the work that has been pulled together by a number of agencies at the Boise Interagency Fire Center; that is remarkable.

Chair now recognizes Mr. Schaffer from Colorado.

Mr. SCHAFFER. Thank you, Madam Chairman.

I have a number of questions. One, Ms. Browner, did I hear—you mentioned that the quality regulations are relaxed on those days that it is known that a fire has taken place?

Ms. BROWNER. It's not a question of them being relaxed. In determining whether or not a particular area meets the public health air quality standards for fine particles, data is collected over an extended period of time, generally a 3-year period of time. If within that 3-year period of time you had a wildfire, for example, the data for that day or for those days on which the wildfire was burning would simply be excluded from the data base.

Mr. SCHAFFER. Do you anticipate that to also be true on those days when a prescribed burn is known to have taken place?

Ms. BROWNER. Well, the first thing with respect to prescribed burns is that they be done following specific guidelines that are designed to speak to air quality benefits and public health and safety concerns. What we have found—and we are working with the Department of Agriculture in terms of prescribed burns, both on for-

est lands and agricultural lands—is that the vast majority of these can be sensibly managed and not in any way contribute to an air quality problem. What it generally means is that you have to burn under certain weather conditions. Frequently, those are the same kind of weather conditions that you would be using for public safety reasons; you need to be monitoring in a particular way. I mean this is just——

Mr. SCHAFFER. But, because of those guidelines, you have no plans to exempt the measurement, similar to the way you do for wildfires? Is that correct?

Ms. BROWNER. We're completing our work with the Department of Agriculture on the prescribed burning policies and that is certainly something we can look at, which is if a prescribed burn were to perhaps get out of control, if it were to create a data problem—again it's many years of data that you select—of what we would do with that particular data point.

Mr. SCHAFFER. So you are studying this and considering it, but there are no plans to exempt those days where prescribed burn takes place. Is that accurate?

Ms. BROWNER. No, that's not accurate.

Mr. SCHAFFER. OK, tell me again what you said. Maybe I——

Ms. BROWNER. What I said is that we are now working with the Department of Agriculture to ensure that we have an agreed-upon set of guidelines, if you will, for managing prescribed burns. If someone follows those guidelines, if they manage their prescribed burn pursuant to those guidelines, then everything is fine; there's no problem.

Mr. SCHAFFER. And no exemption on those days for the——

Ms. BROWNER. There won't—if you do it, they're designed to make sure that you don't contribute to the air quality problem.

Mr. SCHAFFER. Right.

Ms. BROWNER. You know we're preventing pollution the way——

Mr. SCHAFFER. Right, I understand the intent. I just want to establish that it's your belief that, by burning these on effective time schedules, that meet your concerns that there will, in your opinion, be no necessity; therefore, there will be no exemptions from——

Ms. BROWNER. No one's going to be taken to task for utilizing a prescribed burn pursuant to the guidelines.

Mr. SCHAFFER. Are you familiar with the Grand Canyon Visibility Transport Commission study in 1990? It involved eight western States at considerable cost, about $8 million over the course of 4 years. That report found that land managers, in fact, were the largest source of air quality degradation. In fact, the 20 worst days were linked to forest fires and controlled burns included in that. Has—tell us how these new regulations in a prescribed burn—the policy to increase prescribed burning by 400 percent corresponds to the Grand Canyon Visibility Study and the recommendations that the Commission made?

Ms. BROWNER. I mean, there shouldn't be any problem. Again, if it is a wildfire, and I don't know which events you're talking about within that study, but if it is a wildfire, if it is something outside of a prescribed burn, then the data point, the air quality monitoring data point——

Mr. SCHAFFER. I'm talking about prescribed burns. That was the result of this Commission, was to basically fix a large portion of responsibility, in fact an inordinate portion of responsibility, on public lands managers associated with controlled burns.

Ms. BROWNER. We agree. We think controlled burns are an absolutely essential tool, both in terms of managing our forests, managing our agricultural lands, and quite frankly, managing our air quality. We would rather have a prescribed burn and avoid, obviously, all of the problem, not the least of which are public safety, associated with wildfires. It's just common sense.

Mr. SCHAFFER. The increase in controlled burns is on the order of about 400 percent by the proposal that Secretaries Glickman and Babbitt have suggested. Once again, in studying the air quality problems that western States have confronted, in an 8-State region, it was determined that the existing controlled burn strategies by public lands managers contributed inordinately to air quality problems that we have in the West. Now, increasing controlled burns by 400 percent, is—I think you're going to have a hard case to make to suggest that this is going to somehow improve air quality standards and not threaten the new standards at all—certainly not in a way that is to the detriment to all of our other efforts, whether it's auto emissions or manufacturers or whatever the case may be.

Ms. BROWNER. We believe that you can manage prescribed burns in a way that does not contribute to air pollution problems—it's just that simple—including the proposals that have been put forward by the Department of Agriculture, the Department of the Interior.

You know, to suggest that somehow or another people need to choose between having a sensible forest management strategy, including prescribed burn and clean air, it's just not accurate. I'll be honest with you, that is not what we—that is not a choice the public needs to make. They can have both, and they should have both, and that's what these policies will allow for.

Secretary GLICKMAN. May, I just make one quick comment, Madam Chair?

Mrs. CHENOWETH. Mr. Glickman.

Secretary GLICKMAN. I would note that we have seen in 1997, about 1 million acres in prescribed burns, which is a significant increase over 1996, and I don't believe there were any violations of EPA standards at all in that. Because, you know, we have been working with them very closely. I would also say——

Mr. SCHAFFER. Is that the new standards?

Secretary GLICKMAN. Well, we've just been working with them based upon our general collaboration. But the Grand Canyon Visibility Transport Commission, as you mentioned, did produce some dialog with air quality agencies, stakeholders like Federal land management agencies in States which have led to some commonsense changes in mechanical and chemical fuels treatment and also additional support for biomass energy production and research that we're doing in mitigation smoke emissions. So, I think that that Commission has helped us in terms of making sure our prescribed burns are done correctly and without it contributing to air quality problems.

Mr. SCHAFFER. Thank you, Madam Chair.

Mrs. CHENOWETH. Thank you, Mr. Schaffer. The Chair recognizes Mr. Vento.

Mr. VENTO. Thank you, Madam Chair.

It's sort of the way we sit here—they've had this Western Pacific problem in terms of how not to manage rainforests in terms of what's happening there and in terms of the deforestation and some of the problems associated with it. So, obviously, forests and burning of forests can contribute substantially to air quality problems.

But isn't it true, Secretary Babbitt, Secretary Glickman, that in the various management plans for the land that you, in fact, take into account that they are, in fact, consistent with—they go through EIS; they go through a process where you're actually working collaboratively to say we're going to treat this land or this forest or this BLM district in a certain manner and a part of it could be or is prescribed burn? It is an effort to get rid of these fuel loads; you provide for thinning and you provide, obviously in some cases, for harvest where appropriate. Secretary Babbitt?

Secretary BABBITT. Mr. Vento, I would make this point: A properly constructed prescribed fire program will improve air quality on a running average over the air quality you would have without the prescribed fire program. And, I must tell you, anybody who has ever been in a fire camp on a wildfire will understand that with no further explanation.

Mr. VENTO. But I'm just saying that the plans that we have for the land—I understand that, Mr. Secretary, but, obviously, there are some questions being raised about it, but I'm just trying to reassure those that have these——

Secretary BABBITT. Oh, sure the plans——

Mr. VENTO. The plans actually provide for—and they go through an EIS, and they go through—so they are consistent with current and whatever future policy rules and regulations that——

Secretary BABBITT. The plans must comply with the local air quality management regulations. We went through that back in the 1980's, when the superintendent of Yosemite National Park, running a management prescription, got a citation from the adjoining county for violating air quality standards. Then and there, we resolved that issue by saying we're going to sit down in advance and we're going to comply with the local air quality management plans, and it's done routinely.

Mr. VENTO. Well, for that matter, I mean, Secretary Glickman, when the Forest Service has a harvest area, don't they have some slash that sometimes is burned as well? And so that also has to comply with the air standards; is that correct? It isn't just this prescribed burning? Well, I mean it does, if they—if it's a non-attainment area, if there's some other problems, they may say you have to treat that slash in a different way?

Secretary GLICKMAN. Correct.

Mr. VENTO. You know, so, it's—what you're pointing out is—and I'm very impressed that the fact that the Forest Service has this aggressive plan and I hope that we can continue funding it faced with the budget realities that we do.

But, Mr. Secretary, Secretary Babbitt, I notice you have 55 million acres that you say need treatment. And you know, the best bet that you have on the chart that I have there looks like within

about three or four years we might hit a million. So, based on that, and based on sort of a recurring problem here, isn't it—would it be accurate to say that, you know, this 50-year plan is probably one that should be accelerated, if possible?

Secretary BABBITT. Well, Mr. Chairman, I think both the Forest Service and our agencies have a similar fix on this. There is no way that we can make up a century of accumulated problems in 5 years or 10 years. Now, the targets for the Interior Department are: We'd like to get up to about a little over 2 million acres a year by the year 2000. And that's against a total acreage needing treatment of 55 million. Now, if that were all the same kind of land, that would mean a 25-year rotation. And, that's probably not adequate, because most of this land probably needs a fire rotation of more like the order of 5 to 15 years, something like that. But it's a significant start, and if we use good judgment in setting priorities, I think it's a very adequate approach.

Priorities, obviously, for the Forest Service would be Lake Tahoe, urban-wildland interface; for us, similar areas around western cities. Other priorities would look at the stands that have been badly damaged by insect outbreaks, that kind of thing, but those are judgments that I think we can make.

Mr. VENTO. Well, I appreciate that. One of the issues I raised, Secretary Glickman, was the issue of the urban-forest interface, and the Forest Service especially with its leasing programs sometimes has actually contributed to that. I talked about collaboration with the States and counties. Obviously, we need to spend a lot of money, and much of what is spent on fire-fighting today is spent in terms of health and safety because we have that urban-forest interface. Do you have any comments on that, and any types of programs?

It's, obviously, not exactly what you want to hear in terms of the coming from Washington trying to tell people what their local zoning ought to be, but—and so it does represent a serious concern. I'm not implying that you should do that, or Secretary Babbitt; I think you've got enough difficulty with the responsibilities that you have. But, I think we should expect States and counties to, in fact, respond to, in fact, help us with and eliminate the need for suppression in these instances. Mr. Secretary?

Secretary GLICKMAN. I would ask the Chief to respond. Just quickly, I would say that we are doing our best to try to train these fire departments in the areas of urban interface, cooperatively, in terms of how to respond better, getting information—communications—out in terms of fire prevention techniques.

I was up the Buffalo Creek fire myself, right outside of Denver where that particular fire occurred, and seeing the number of people who were involved in camping activities very close to the Denver area, this is a very high priority. But the Chief, I'd like him to, if possible, respond.

Mr. DOMBECK. With the permission of the Subcommittee Chairman?

Secretary GLICKMAN. Why don't you identify yourself for the record?

Mr. DOMBECK. Mike Dombeck from the Forest Service. I'd just like to say our—in the new fire plans that we have—our top prior-

ity is dealing with the urban-wildland interface. In the planning process, in our response, and that, you know, I think, because, you know, these residences get there by a variety of reasons. But, when you travel in the West, and in any parts of the country, and when you see the 5-acre lots, the 10-acre lots, with dense forests around them with fuel problems, I think, that really paints the picture for us.

Mr. VENTO. Well, Madam Chairman, one of our best allies is communities like Portland where they're trying to deal with the urban sprawl, and I just think that this all comes together and we have an interest in it. I won't be able to return after this vote, Madam Chair, because of the Eximbank legislation is going to be next on the foreign. They need my help.

Thank you, Madam Chair.

Mrs. CHENOWETH. Thank you, Mr. Vento. The Chair now recognizes Mr. Calvert.

Mr. CALVERT. Thank you, Madam Chairman.

Administrator Browner, we've had discussions on the new clean air standards, and, as you know, I've had my problems with the new standards considering the fact, you know, California probably cannot meet its existing standards until at least 2010. And, as was pointed out in an editorial that was in a recent Science magazine issue talking about the lack of science on particulates, primarily of 2.5 and below, is lacking at best. But saying all of that, my logic obviously wasn't listened to and we're moving on to these new clean air standards. There may be discussions about this in the halls of Congress later this session; we'll find out.

But back to the issue at hand, and that's the forest fires and how that's going to be handled. You know, I'm from the South Coast Air Basin, probably the most polluted air quality in the United States. However, we've done a particularly good job, I think, in the last 50 years, and we're celebrating our 50th anniversary of cleaned-up air. As a matter of fact, Jerry Lewis, my colleague, wrote one of the first clean air acts in the United States, and we've made great progress. And, by the way, Jerry has his problems with this new standard also.

But saying that, fires, when they occur—and by the way, fire suppression in California, you know, we've gotten it down to an art; we have more fires than anybody else in this country and we do a pretty good job of getting them out, though we hear about the ones we don't put out. That's one of the problems. We have a lot of land that needs to be burned off, probably more, I suspect, then most areas in this country. And because of that, and because of these new clean air standards, even though you're not going to put them into effect until 2010, is to say that the fire days themselves are the days in which they will be removed from the formula in which we're going to put together both our ozone standards and our particulate standards. Those particulates hang around for a few days. It's like in-laws, you know, once they come, they stick around.

Ms. BROWNER. We'll take those out. We'll take the in-laws out.

Mr. CALVERT. Those things have got to be considered when you put together those averages. Because we have the—we consider in southern California, particularly from the district that I represent—the law of unintended consequences. I don't think the flow-

er-loving, delphi sandfly was supposed to shut down the 10 freeway either, and discussions of that occurring, you know, scares a lot of people. And, these air standards scare a lot of people. And, I would hope that, if in fact these go forward, that we can make sure that these are common sense and not the irrational regulations that we have experienced in my area before.

Ms. BROWNER. Well, first of all, we would also join you in applauding the South Coast Air Resource Board for the work that they have done. They have not only done a good turn for your part of the country, but in many ways for the rest of the country. We have all learned, from many of the efforts they have been engaged in, how best to find the common-sense, cost-effective solutions to air pollution and provide the public health benefits.

In terms of forest fires, as I said earlier, don't create an ozone problem. The question is, obviously, the fine particles. And, I want to be absolutely clear, that where you have a wildfire, a natural event, it is absolutely our intention—we have been talking to the States about this to ensure that—the air quality data collected around that event is not included. You know, it just wouldn't make any sense to us. I mean, why do we want to put something into the data base that is beyond everybody's control? What this is about is getting people clean air in a sensible manner. So you have our commitment that those days, as you say, the in-laws on the front end or the back end, whatever——

Mr. CALVERT. Forgive me for being suspicious, and I understand your intent, it's what really happens that I'm concerned about. Because, in the years that this is imposed, I suspect that many of us won't be here in Washington.

Ms. BROWNER. Well, I can assure you I won't be here.

Mr. CALVERT. Secretary Babbitt may be back in Phoenix, and I'll be back in Riverside, and we want to make sure that these laws are being imposed on people the way we say they are and not down the road when we get into issues like the Endangered Species Act, where we get into some pretty interesting fights around here.

Ms. BROWNER. But, I wouldn't ask you to simply take our word; we have committed, and are in the process now of, and have already put portions of the implementation strategy in the public record. All of this goes into a Federal Register notice. I mean, no one is being asked to take anyone's word here. What I am explaining to you is how we have articulated a common-sense strategy particularly designed to deal with these kinds of events, and it will be in writing, and it will be in the Federal Register.

Mr. CALVERT. That makes me feel better.

Mr. VENTO. Will the gentleman yield to me? Gentleman yield to me?

Mr. CALVERT. Whatever time I have left.

Mr. VENTO. Well, I know we've got to go for a vote, but I was just going to point that they don't include in the record natural forest fires; and when the plan for this is you deal with humidity, wind, fireload, in terms of dryness, and so forth, so there are a lot of different factors that go into it that minimize the air quality problems.

Ms. BROWNER. Madam Chair? If I might just——

Mrs. CHENOWETH. Ms. Browner?

Ms. BROWNER. There are monitors out there right now, a monitoring network measuring 2.5. We do not have a 2.5 violation where there has been a fire. So, it hasn't happened. I understand why people are raising the concern, and we should speak to it and ensure that if it ever does happen, we know how to manage it. But we have records already, and it is not happening; the concern that people are raising has not yet occurred. But that doesn't mean that we won't speak to it in The Federal Register.

Mrs. CHENOWETH. Thank you, Ms. Browner. When we return, if Ms. Christian–Green will yield her time to Mr. Farr who's asked for it, we'll return immediately to Mr. Farr. We only have a little less than 5 minutes on our vote. So——

Mr. FARR. Make a quick statement, Madam Chair, that's all I wanted to make.

Mrs. CHENOWETH. I'm afraid we're going to have to temporarily recess, so we can go for our vote.

Secretary BABBITT. Madam Chair, if I may, I have a 12:30 appointment, and if you will be willing to do without my presence, I would be very grateful.

Ms. BROWNER. I have a 12:25.

[Laughter.]

Mrs. CHENOWETH. Mr. Secretary, I'm very sorry about these votes and, yes, I do see you only have 9 minutes to make your appointment. But, we do need—Mr. Glickman, if you can remain; Ms. Browner, if you can remain.

Secretary GLICKMAN. My problem is that I think I have the same appointment as Mr. Babbitt. But, I can be here about 15 more minutes—15 or 20 more minutes.

Mrs. CHENOWETH. I think, then, what the Chair will do is simply say that we will submit our questions in writing to all of you, and if we could receive your responses early on, I would very much appreciate it.

[The information referred to may be found at end of hearing.]

Secretary GLICKMAN. I would also say, Mr. Dombeck, I will have him remain, the Chief of the Forest Service, if you would like to have that?

Mrs. CHENOWETH. I would appreciate that very much. And, if Ms. Browner has to leave, if someone could remain to answer questions for you?

Ms. BROWNER. Certainly.

Secretary BABBITT. And, I will leave Jim Douglas as my proxy.

[Laughter.]

Mrs. CHENOWETH. Thank you, Mr. Secretary, thank you very much.

[Recess.]

Mrs. CHENOWETH. The Committee will come to order.

Mr. Kildee?

Mr. KILDEE. Thank you, Madam Chair. I appreciate the way you are handling all these votes, and I appreciate the witnesses' understanding. I think the only person who really understood the votes was Dan Glickman, having served in this body for about 18 years.

I have one question: It was stated that about 55 million acres of land are candidates for prescribed burning and we're doing about 1 million acres a year and we'd like increase that to 2 million. How

many additional acres, however, are being added to that figure by the same forces of nature that have caused this present situation? Per year, how many additional acres might be added? I'm trying to figure out how we're really making progress on this, because I am sure there are additional candidates for that category.

Mr. DOMBECK. Yes, the—and we will try to get—I can't give you a specific acreage, but we will try to be as specific as we can on a written response. But, what I can tell you is that from the standpoint of the 191 million acres in the National Forest System lands, our goal is to treat up to 3 million acres per year. And, at that rate we would be where we want to be by 2012.

And, as Secretary Glickman mentioned earlier, our target this year, this current year that's ending the fiscal year ending tomorrow?—today—we had planned on doing 750,000 acres, and we reached 1 million. The reason we were able to exceed our targets is because we had a fairly easy fire year, the weather conditions, and we had additional resources we could deploy in a—to deal with some of the problems, rather than—we were blessed with an easy fire year from the standpoint of suppression. I guess I can't speak for Interior on acreage.

[The information referred to may be found at end of hearing.]

Mr. DOUGLAS. For the Department of the Interior, I would say the same thing that Mike has said: We will provide more detailed figures for the record. But, you're correct, when there is wildfire—natural ignitions—a lot of times those are occurring in areas that we would otherwise be treating with management-ignited fires at some point. Of course, not all. And, take for example, the fire that is just happening right now outside Sacramento, that's clearly an area that we wouldn't be burning deliberately, certainly under those kinds of conditions and circumstances. So we couldn't count that as a fuel-treatment acre.

[The information referred to follows:]

Insert on Page 80, Line 1794

COGGINS I

SPECIAL PRECAUTIONS/REGULATIONS:

A. Receive archaeological clearance from qualified archaeologist.

B. Receive Northern Spotted Owl clearance from qualified biologist.

C. Notify adjacent landowners.

D. If the burn occurs during deer or bear hunting seasons hunter notification will be conducted.

XI. BURNING PRESCRIPTIONS AND OBSERVED CONDITIONS

NFFL (FDRS) Fuel Models:	6	(F/Q)	50%
& percentage of burn area	9	(G)	35%
	8	(H)	15%

PRESCRIPTIONS

Weather	Range	Optimum	Observed
Temperature	32-75F	70F	48-60°
Relative Humidity	30-65%	35%	61-82
Wind Direction	N,S,E,W	E	W,SW,N
Wind Speed (midflame)	0-7mph	4mph	0-4 GUSTS 7
Fuel Moisture (1 hour)	4-8%	5%	
(10 hour)	8-20%	12%	14-16%
(100 hour)	8-20%	16%	15.5%
(1000 hour)	10-30%	20%	17%
Woody Live	50-110%	90%	124%
Herbaceous Live	60-90%	80%	

FIRE CHARACTERISTICS

Characteristics	Range	Optimum	Observed
Rate Of Spread (chains/hour)	.5-5	3	BACKING 1'/minute HEAD 3'/minute (2 months)
Flame Length	0-10'	2'	
Scorch Height	5-50'	25'	
Fireline Intensity Btu/ft/s	30-100	60	
Burning Index	10-35	20	

note: maximum 80' in many running crown of a fir thicket 40'/minute

note: maximum of 40' in crowning jackpots of thicket

*Standard Observation Time 0700-1600 Dates of Burn 10/27

COGGINS II

OFF SITE:

A. Notify adjacent landowner of plans to do burn next to their property.

B. Complete necessary pre-work as listed on the Management Ignited Prescribed Fire Checklist.

C. Post press release notices three days prior to the burn at the Whiskeytown Post Office, Visitor Center, Oak Bottom Store, and Brandy Creek Marina and Beach Area.

SPECIAL PRECAUTIONS/REGULATIONS:

A. Receive archaeological clearance from BLDW archaeological staff.

B. Receive wildlife and vegetation clearance for T&E species.

XI. BURNING PRESCRIPTIONS AND UNSERVED CONDITIONS

NFFL (NFDRS) Fuel Models:	9	E/U	70%
& percentage of burn area	6	F	20%
	decomposed granite		10%

PRESCRIPTIONS

Weather	Range	Optimum	Observed
Temperature F	40-85	70	
Relative Humidity %	30-80	35	
Wind Direction	N,S,E,W	SW,S	
Mid Flame Wind Speed	0-7	4	
Fuel Moisture (1 hour)	4-8	8	
(10 hour)	7-14	10	
(100 hour)	8-20	14	
(1000 hour)	20-35	25	
Live Foliage Moisture	70-150	110	

COGGINS II (continued)

FIRE CHARACTERISTICS

Characteristics	Range	Optimum	Observed
Rate Of Spread (chains/hour)	.5-20	4	
Flame Length	.5-10'	2.5'	
Scorch Height	3'-50'	15'	
Fireline Intensity BTU/FT/S	40-100	80	
Spread Component (feet/minute)	5-15'	11'	
Burning Index	10-50	30	

*Standard Observation Time _____ Dates of Burn 10/21 - 10/25/95

XII. FIRING TECHNIQUES AND HOLDING METHODS

Firing and Ignition:

A small test ignition at the burn site will be conducted with a drip torch to observe ignition and combustion rates one day prior to the proposed ignition date. A firing and project map will be made for the burn. All firing operations should be completed in 1-2 days.

Drip torches will be used for ignition operations. Strip, spot, and Chevron ignition patterns will be used to ignite the unit. Firing patterns and directions could change depending on wind direction and other weather parameters.

Firing operations will begin at the northeast corner of the unit. A 50-120 foot wide blackline will be created working south along the west line and east along the north line. An ignitor will remain along both the north and west lines while 2-4 interior ignitors will work inside the unit. Firing will continue in a southeastery direction through the unit as the blackline is lengthened along the western and northern firelines. There are at least three minor drainages with significant relief within the unit. The Ignition specialist will use good care and communication to ensure the safety of ignitors in the interior of the unit. Chevron and strip firing patterns utilizing the contour will be used to create a even backing fire through the unit. The ignitors will use firing patterns 5-15' wide depending on winds and fire behavior. See the firing map.

Approved Holding Actions:
The roads, and temporary fire lines surrounding the burn unit will be used for holding operations. Engines, watertenders, and a small creek at Coggins Park Campground will be available as watersources and to assist with holding operations. Back pack pumps and/or hoselays may be utilized if deemed necessary by the Holding Specialist or Burn Boss.

COGGINS III

XI. BURNING PRESCRIPTIONS AND OBSERVED CONDITIONS

NFFL (NFDRS) Fuel Models:	9	E/U	70%
& percentage of burn area	6	F	20%
	decomposed granite		10%

PRESCRIPTIONS

Weather	Range	Optimum	Observed
Temperature F	40-85	70	
Relative Humidity %	25-80	35	
Wind Direction	N,S,E,W	SW,S	
Mid Flame Wind Speed	0-7	4	
Fuel Moisture (1 hour)	4-8	8	
(10 hour)	7-14	10	
(100 hour)	8-20	14	
(1000 hour)	20-35	25	
Live Foliage Moisture	70-150	110	

FIRE CHARACTERISTICS

Characteristics	Range	Optimum	Observed
Rate of Spread (chains/hour)	.5-20	4	
Flame Length	.5-15'	2.5'	
Scorch Height	3'-50'	15'	
Fireline Intensity BTU/FT/S	40-100	80	
Spread Component (feet/minute)	5-15'	11'	
Burning Index	10-50	30	

*Standard Observation Time _____ Dates of Burn _____

COGGINS IV

XI. BURNING PRESCRIPTIONS AND OBSERVED CONDITIONS

NFFL (NFDRS) Fuel Models: 9 E/U 60%
& percentage of burn area C P 30%
decomposed granite 10%

PRESCRIPTIONS

Weather	Range	Optimum	Observed
Temperature F	40-85	70	
Relative Humidity %	25-00	35	
Wind Direction	N,S,E,W	SE, or upslope	
Mid Flame Wind Speed	0-10	4	
Fuel Moisture (1 hour)	4-8	8	
(10 hour)	7-14	10	
(100 hour)	8-20	14	
(1000 hour)	20-35	25	
Live Foliage Moisture	70-150	100	

FIRE CHARACTERISTICS

Characteristics	Range	Optimum	Observed
Rate of Spread (chains/hour)	.5-20	4	
Flame Length	.5-15'	2.5'	
Scorch Height	3'-50'	15'	
Fireline Intensity BTU/FT/S	40-100	80	
Spread Component (feet/minute)	5-15'	11'	
Burning Index	10-50	30	

*Standard Observation Time _____ Dates of Burn _____

Mrs. CHENOWETH. Mr. Douglas, excuse me.

Mr. DOUGLAS. I'm sorry.

Mrs. CHENOWETH. Could you state your name for the record?

Mr. DOUGLAS. Oh, I'm sorry, I'm Jim Douglas with the Department of the Interior.

So there is a combination there of some of the natural ignitions certainly will count against those acres.

Mr. KILDEE. OK. Well, get the figures both for BLM and the Forest Service about how many acres, just by the same forces of nature, might be added each year, so we'll see how much progress we are making hopefully by 2012. I assume you have factored that into that expectation for 2012?

Mr. DOMBECK. Yes, the challenge is a net gain.

Mr. KILDEE. Right. Knowing quite well that they are quite different, and I know they are horribly different and—but the fires that are occurring in Malaysia, have you studied what they have done wrong over there, and are they in turn studying what you are doing right over here?

Ms. LAVIN. Yes. I'm Mary Jo Lavin from the Forest Service. Yes, we have looked at those acres, and we have looked at the problem in Indonesia. We have actually four teams that have gone in the past, from the early 1990's. We have had several teams that have gone over and provided training for them in fire-fighting. We actually had a combination four-person crew that went over recently—just returned 2 days ago—that included three members from the Forest Service and it also had a person from Interior. What we did was provide training for them, as we have in the past, for their management as well as their crews. We know what they're doing that is a problem; that's a decision of their government to continue those practices.

Mr. KILDEE. I appreciate your answer. I have been very concerned about that and I encourage you to continue to do what you are doing. I think it's very important.

If I could ask just one additional question—I have in my folder here, this is probably to Sally Shavers; is she still here? It says, "Projected non-attainment counties for the PM 2.5 and ozone revised," and I don't see any source of where this—is this from EPA or not? Are you familiar with this document?

Ms. SHAVERS. No, sir, I'm not familiar with the one you have. I know there is a projected list, but those are not based on——

Mr. KILDEE. I think—could you take a look at the one there and see if that's from EPA. I always like to know the source of—there's no authority on here.

Mrs. CHENOWETH. Let me ask counsel.

Ms. SHAVERS. No, sir, that's not ours.

Mr. KILDEE. It's not yours. OK, all right.

Ms. HEISSENBUTTEL. Staff provided that for the information of the Members.

Mr. KILDEE. Who provided that?

Ms. HEISSENBUTTEL. We received that from the American Petroleum Institute.

Mr. KILDEE. From the American Petroleum Institute. OK. I think it's very important, Madam Chair, if we could give the source for these things, because EPA putting it out and American Petroleum

Institute, they might have a different perspective or different way of counting. I appreciate that.

Mrs. CHENOWETH. Thank you, Mr. Kildee.

Mr. KILDEE. Thank you very much.

Mrs. CHENOWETH. In my desire to make sure that the Committee was afforded as much time as possible while Mr. Dombeck was here, I neglected a responsibility of mine and that is to make sure that all the witnesses are identified and that they are all sworn in. And, so, I wonder if you could stand and raise your right hands please.

[Witnesses sworn.]

Mrs. CHENOWETH. Can we start for the record with the identification of the witnesses with Mr. Dombeck? Mr. Mike Dombeck. And then next is——

Ms. LAVIN. Mary Jo Lavin.

Mr. DOMBECK. She is Director of Fire and Aviation of the Forest Service.

Mrs. CHENOWETH. Yes; and then next?

Ms. SHAVER. Sally Shaver with EPA, Director of the Air Quality Strategies and Standards Division.

Mrs. CHENOWETH. Thank you.

Mr. DOUGLAS. And, I'm Jim Douglas of the Department of the Interior in fire policy.

Mrs. CHENOWETH. Thank you. And while we knew who you were, we wanted to make sure that the record was very clear.

So with that, the Chair recognizes Mr. Pombo.

Mr. POMBO. Thank you, Madam Chairman.

Ms. Browner said that the forest fires would be exempt from the standards, or that that period of time when the fire was burning would be exempted and that something would be worked out similar to that on prescribed fires. Why, and I know she said it just made common sense, but why is it being exempted? I mean, it happened?

Ms. SHAVER. What we are doing—we have a natural events policy which was published in 1996, which for wildfires that are under active suppression, we discount those data where standards are violated because those were not controlled; they were not instigated by man and that kind of thing. What we're looking at in the policy, and we've not finished with that yet, is some—if you are in accordance with the land management plans which are part of the—go through the NEPA process—and you've addressed the air quality issues, then we don't envision there will always be air quality standard violations. In fact, if you manage the burns appropriately, there probably won't be. In the event that the weather conditions might change, or in the event that we didn't follow through correctly on the burns, we didn't follow the prescription for the fire, then we would say that there might be some—there could be a violation at that point in time. Then the appropriate response would be taken to that. However, if you're following the prescription, and you get an air quality violation, then we don't think that there should be a non-attainment designation based on that. And that's the type of policy that we're trying to put together right now.

Mr. POMBO. Are there other natural events that are not controlled by man that are exempted as well?

Ms. SHAVER. Yes, the natural events policy addresses dust storms as well as volcanoes, including the wildfires.

Mr. POMBO. What about weather patterns, unnatural weather patterns? Is that also exempted as well?

Ms. SHAVER. No; of course, the unnatural weather patterns would be a part of the dust storm aspect, but then that's based on whether the soil conditions and the wind conditions in that area would constitute an unusual event.

Mr. POMBO. I wanted to ask the Forest Service, I know, Mr. Dombeck had to leave, but how are the wilderness areas—and this I guess would involve Interior as well—how are they going to do prescribed fires in those particular areas?

Ms. LAVIN. We will continue to do prescribed fires, regardless of location, but particularly, since you asked, on the wilderness areas, as we have in the past. We will use primarily natural causes but we do have the authority, and will use as we have in the past, management ignitions, if that would be more appropriate. We will look to follow the same regulations that we have followed in the past; there will be no change, because these are the Federal fire policy or the new air quality policy.

Mr. POMBO. Why is it preferable to allow a fire to burn, whether it's natural or man-made, than to do mechanical thinning?

Ms. LAVIN. I'm sorry, sir, I didn't hear the last part of your question.

Mr. POMBO. Why is it preferable to allow a fire to burn, whether its natural or man-made, in preference to mechanical thinning or other management techniques?

Ms. LAVIN. Right. There are times when it isn't preferable. What we do is in the preplanning process, in the planning process, and looking at it ahead of time, and looking at what is the best way to manage those resources, we make options and make those choices. There are times, for example, when we cannot use fire as an appropriate tool because the biomass is so great that we would start a catastrophic fire ourselves. And that is basically what the situation that you have in Indonesia, which was the question asked earlier.

We must follow a prearranged plan, and that plan tells us what are the most effective ways to manage that resource. And in times, in fact, in about 50 percent of the lands that the Forest Services manages across the Nation, we feel that we will need to use mechanical treatment prior to our introducing a regular regime of prescribed fire.

Mr. POMBO. About 50 percent?

Ms. LAVIN. About 50 percent nationally. In some of the States in the West—for example, the State of Montana—we know that they have told us there that only 10 percent will be able to use fire as the first means of managing those resources. So we will work our way toward using fire, low-intensity fire, which is a more natural process than the mechanical treatment.

Mr. POMBO. It seems like in the last several months a real emphasis has been placed on controlled burns, on fire; and logging the forests, cutting out the trees of any kind, has been decreased dramatically in recent years. How do you go about making that deci-

sion as to when it's best to let something burn or to light a fire versus allowing someone to go in and thin the trees?

Ms. LAVIN. Those decisions are made on a site-specific basis. So they are made as a local decision.

In the planning process, when you're looking at the prescribed fire, or you're looking at the land management plan, you're involving the public. That's the advantage that we have over the wildfire, which doesn't involve anyone when it actually happens. So, in the planning process we're making those decisions, but making those decisions with the local "experts," and I'm putting quotations marks around that, as well as the public who are living there who have very expert opinions about the place where they live. So we're making those decisions together on what is the best way to treat that particular area.

Mr. POMBO. So those decisions will be made locally and they will not be made back here?

Ms. LAVIN. Very definitely. They have to be made locally. We can make general policy, and we do, from a national basis, but when we actually look at implementing that policy, that is a site-specific, local decision involving—especially in the planning process—involving all the publics.

Mr. POMBO. Madam Chairman, I have just one additional question for the Department of Interior. One of the issues that has arisen around the forest over the past several years has been the issue of endangered species within those particular forests. How is it going to be handled to go into a particular forest and light it on fire with the endangered species that may exist there, or the potential habitat? One of the issues that has been raised quite a bit in recent years is that, even though the species may not be there currently, it's potential habitat—and I think most of the forests that we've talked about are potential habitat—for an endangered species.

Mr. DOUGLAS. Let me address that by also addressing the last two questions you asked as well.

All of the work on land management practices, forest management practices, is done in accordance with the planning process. So, whether it's harvesting of timber or burning or managing for a particular wildlife species or for recreation, whatever, it's all based on land management planning, and all of the Federal agencies have roughly similar land management planning practices. So, in the course of that planning, we would consider all of the resource management issues involved, including endangered species: what's there now, what the habitat is, what it needs to survive, what's in the area, that sort of thing.

We would look at, in particular with relationship with fire, the role in that particular area that fire has historically played in maintaining and sustaining a healthy and natural system there. In many cases, those endangered species depend on a particular vegetative forest type that's driven by fire in order to survive. So there's not necessarily a direct conflict between an endangered species population or an endangered species habitat and the use of fire, and in fact, we may want to use fire to maintain suitable habitat for that.

So, the answer is: through the planning process, through the analysis of scientific information, other management constraints, including socio-, and political, economic constraints, we'll look at what our resource options are, what makes sense from an ecological standpoint, what makes sense from other land management standpoints, and take appropriate management actions. It may be a combination of fire, use of mechanical treatments, depending on what our constraints are and what we're trying to manage for.

So, endangered species becomes one of the factors that are considered. It's not the only factor; it fits in there along with everything else.

Mrs. CHENOWETH. Thank you, Mr. Pombo. The Chair recognizes Mr. Doolittle.

Mr. DOOLITTLE. Thank you, Madam Chairman. Let me ask the Forest Service, if 50 percent of the public forest land in the country is deemed to be unsuitable for prescribed burn, what would be the percentage you estimate in the State of California.

Ms. LAVIN. I can't answer that with exact percentages, Mr. Doolittle. I can do that by checking with our region and I will get back to you in writing.

Mr. DOOLITTLE. OK. And, you might break it down, too, by, you know, the sections of the State: the Sierra Nevadas, for example. The area that's on fire now, which I believe is Yuba County, is that an area that is deemed unsuitable for prescribed fire?

Ms. LAVIN. Well, it would be unsuitable for the Federal Government to be doing prescribed fire there because those particular lands that are involved in the two large fires in California, I believe, are on private land that is protected by the State of California.

[The information referred to may be found at end of hearing.]

Mr. DOOLITTLE. What about the public lands in that region? Do you know their suitability for prescribed burn that are on public land?

Ms. LAVIN. I can't speak to them specifically. I looked at the details of the two fires and I questioned the ownership of the fire because I saw that they were in—that the fires were in 60- to 70-year old timber with a high accumulation.

I can't answer that, but they are the factors that we would use as we look at those and get the specific figures for you. We would look at what was the fire regime in that area, and I would be asking the region to tell me what, how they had planned to treat that area.

We have an interesting study that our research people have developed and that is a simulated exercise. We did it on one of the forests in California following the Huffer fire, so it was on the Lassen National Forest. And we looked at that, what was the historic land cover, and we have that data across the Nation for all of the forests, national forest lands. And we looked at what is the current land cover there, and we saw that with the current land cover, for example, with fire having been suppressed in that area, that the fire intensity, the length of the flame, for example, currently with the present ground cover would be much greater than it was historically when fire was a natural part of the process.

And, so it's that kind of use of research, use of the expertise that is local to that community, that we'd use in the planning process, and that we will use in getting back to you and giving you an answer on the question relative to the Sierra Nevadas.

Mr. DOOLITTLE. For a long time the Forest Service and the experts behind it believed that suppression of fire was the appropriate public policy. Is that not the case?

Ms. LAVIN. That's very much the case, Mr. Doolittle. We also—I know I used to work for the State of Washington, before I came to the Forest Service—came into the Forest Service—and I know that the State agencies, for example, used to call their divisions of fire or their programs, "fire control," because we thought, at that time, that we could control fire.

Yellowstone taught us a lot of important lessons, and then we have learned a lot since that time. And, I'm hopeful that we will continue to learn in the process. We have learned a lot of things about fire. We didn't realize in the past that they had—that fires were like floods—and that you had regular, recurring basis for both events.

Mr. DOOLITTLE. You brought up Yellowstone. It's my understanding we do not manage the forests on national parklands. Is that correct?

Ms. LAVIN. Let me ask Mr. Douglas to answer your question specific to the national parks, although I just was out there last week and saw both the national park and the Bridger Teton National Forest, and there is a difference in the way we manage. But let me turn that question, if that's all right with you, sir, over to Mr. Douglas to answer.

Mr. DOUGLAS. Yes, Yellowstone National Park is a National park, of course, but the same basic rules apply. And that is: There are land management, resource management plans, that are done and they're based on the underlying purpose of that land unit. In the case of the national park, it's not managed for resource production in the same way that many national forests are; it's managed more for its natural conditions. So they're probably going to have different fire policies, fire strategies, and land management strategies than they are adjacent. But they're all going to be based on, in both cases, what is the historic fire regime; what works best for restoring and sustaining healthy natural systems there.

Mr. DOOLITTLE. So, do they remove understory on National parks?

Mr. DOUGLAS. If it's appropriate to do so. One of the things we have to remember is that a forest is not a forest, is not a forest; and the kind of forest we're talking about in the greater Yellowstone area is much different than we're talking about further west in the inland West there. Ponderosa pine——

Mr. DOOLITTLE. Well, let's talk, in the Yosemite area, for example?

Mr. DOUGLAS. In the Yosemite area? Well, if things were going normally, and that is, we hadn't suppressed fires, as you point out for so long, we wouldn't have to go in and mechanically remove because fire would have—low-intensity frequent fires would have—removed a lot of that understory. We believe, in many cases—and this is what's going on in Sequoia Kings Canyon National Park

right now—that we're able to, with judicious use of fire, and I think they're doing that as we speak, remove some of that understory with fire. If there are cases in which it is too thick, it's too close to structures or other high-value resources, we'll go in and do some kind of removal in order to facilitate the reintroduction of fire. But, ultimately, we want—the goal is—to place fire back in there in a role it played historically.

Mr. DOOLITTLE. Is it not, though, indeed, the case that in much, at least in California, if not—well, we've heard 50 percent of the Nation—that they, the forests, are so choked with over-growth now that you could not safely use prescribed burning as a way of clearing out the understory?

Mr. DOUGLAS. And, that's exactly, I think, what both Secretaries said earlier today, which is: We need to use fire along with mechanical treatments to get back to a point where fire can safely be used. In some cases we can go straight to fire. In many cases, I think, that's what the Forest Service has been talking about with the 50 percent number; some mechanical treatments are necessary before we can use fire. In some cases we're always going to use mechanical because of the proximity to the communities, and so on. So we need to use all of those tools, not any one by themselves.

Mr. DOOLITTLE. Here's the question I've never had a satisfactory answer to. Let me pose it to you, or any of you there. It's my understanding, from testimony we've had before this Committee and others that I sit on, that the annual rate of growth on forests exceeds the annual removal of timber by like four or five to one. And my question to you is one: Do you accept those figures? And, two, if you accept those figures, how can we ever prevent catastrophic forest fires from occurring when we talk about some mechanical thinning? You'd have to quadruple the size of the Forest Service and have emergency regulation to hire logging teams to go in and log beyond historical standards to ever even hope to catch up with this. And, I'd like to know how you see us getting out of this dilemma.

Mr. DOUGLAS. I don't know the specific number that you're referring to, but I will say if you think about back before at least European settlement of this continent, there was a balance: Trees grew and either they died and fell down or they were burned or some combination thereof.

Mr. DOOLITTLE. Well, let me just jump in on that note. I mean, why do we assume that these were not managed before European settlement. We know for a fact the Indians managed the forests. And is there any reason to believe they weren't managing the forests before Europeans arrived?

Mr. DOUGLAS. There's ample evidence that indigenous peoples where in fact using fire to a great degree. My point, simply, is that our—certainly European—settlement has increased the amount of human intervention in the forest. But my basic point is that fire has always been there in one way or another consuming fuel.

And, going back to your observation earlier, Mr. Doolittle, we thought it was prudent policy for many, many years to put those fires out before they burned very much of that fuel, so we're left with a lot that under other circumstances would have been consumed by fire. We clearly have a problem of too much fuel.

What we clearly need to do is remove some of it mechanically, where that's the prudent thing to do, and get fire back in there as soon as possible. It's cheaper; it's more ecologically sound whenever we can do that; and we need to use a combination of tools to do that.

Mr. DOOLITTLE. Well, but I'm still not, Madam Chairman, I'll be finished here in just a minute. When we're growing four to five times annually in the forest what we are harvesting, the approach the administration is taking is so minuscule compared to the problem. In fact, you've thrown roadblocks, frankly, every possible way you could in the harvesting of trees, as we saw with the Emergency Salvage Law and how that was implemented. And, I'm just amazed how you could—why isn't this a catastrophic problem that we're facing, when we're growing annually four to five times on these forests what we are harvesting? Am I missing something? Aren't we compounding almost geometrically the problem?

Ms. LAVIN. Mr. Doolittle, I can't speak to those numbers either that you give us in the growth rate because that's not my field of responsibility, but let me answer the question that we're distinguishing here. The 50 percent acres that we're telling you are the 50 percent of the acres that we're talking about as being not able to treat are limited to those that we know have a problem that needs fuel treatment, not the total number of acres that the Forest Service is managing. So when the Forest Service speaks of that, we're talking about 50 percent or 20 million acres. We're talking about those acres that need treatment that we know of. The timber you're talking about as growing is green and growing timber, and although there have been very intense fires—and there is no question about that—which have involved green and growing timber, we usually count the green and growing as an opportunity, as a break in the fuel. So, what we're talking about as needing treatment are those acres which include trees that are a problem or a biomass that is a source of fuel for us, that it's very dry; it's tinder dry, and that's what we're talking about.

Mr. DOOLITTLE. My point is is that in forests, when they get so overloaded with growth, they begin to die. And there you have—and it's strewn throughout the green and growing—you've got the dead and dying. And I mean the forests in the central Sierras are just chock-full of all of this. I doubt that you could use prescribed burning in any area of the central Sierra forests, and you'd have to commission—we'd put everybody to work in the central Sierra and then some if we did the job that needed to be done, but all I hear is, "We're going to do some thinning and some prescribed burning."

I mean, it sounds like a very, you know, Marquis of Queensbury-type rule, and we've got a crisis out there, and we're growing four to five times annually the amount of timber that we're harvesting. How can we ever hope to catch up? And I still haven't heard the answer. I've got a panel of experts there, and you're not responding.

I think the Chairman will back me up on those figures that we heard. It is four to five times annually. Let's assume for a minute that's true. Tell me how the administration's approach, its very

careful, methodical thinning, how that's going to respond to this problem.

Ms. LAVIN. Mr. Doolittle, I know that in the Forest Service that we have an action plan that will involve planning at the local level that will get us to 3 million acres of prescribed or fuels-treated; we will get to 3 million acres per year of acres treated for fuels by the year 2003, and that we're recommending that we continue that for the next 20 years. We know that by the year 2012 we will have, give or take a year, we will have reached a treatment of the 40 million acres that we have identified as being the most critical.

We know that this year we were able to move ahead because of weather conditions and also that by having fewer fires to suppress—wildfires to suppress—we were able to move ahead and treat 1 million acres. We know that this exceeded the amount of acres that were lost to wildfire or engaged in wildfire by quite a substantial amount. We have today—the current morning report said we have, in the Forest Service, had 146,770 acres burned, and we know that was in wildfire. We know that we far exceeded that in the amount we were treating with prescription.

Mr. DOOLITTLE. Well, how many million acres have you identified that need treatment across the country?

Ms. LAVIN. How many? Your question was how many acres have we identified that needed treatment?

Mr. DOOLITTLE. Yes.

Ms. LAVIN. We have identified approximately—I believe we have identified approximately 40 million acres.

Mr. DOOLITTLE. So you've got 40 million acres that need treatment, and you're only doing 3 million a year. And what's happening in all those hundreds of millions of acres that aren't quite as critical, but that are increasing the timber supply year after year after year, in excess of what's taken off? Isn't that out there compounding, building up geometrically? That's my point. How can 3 million acres possibly be doing the job?

Ms. LAVIN. We think that that is an amount that we in the Forest Service can handle safely and then can handle productively.

Mr. DOOLITTLE. Well, you may be able to handle it safely and productively—I don't mean to be argumentative, but my point is these forests are overchoked with growth, and, you know, your response isn't meeting the need. Am I the only one that sees that, or do you see what I'm talking about?

Mr. DOUGLAS. Mr. Doolittle, I think that the fact that you had three Cabinet-level officials here today speaks for the fact that the administration does take this very seriously. Secretary Babbitt, in his tenure as Secretary, has been speaking out strenuously on these issues because of the urgency of the situation.

We are looking at from now until—in the Interior—from now until the year 2001, almost tripling the amount of treatments that we will be doing. That is an enormous increase in the amount of activity, and it speaks for the urgency which we see.

When we talk in the Department of the Interior about 55 million acres needing treatment, that doesn't mean that 55 million acres need to be treated every year. What that means is that's the amount that needs to be treated on the cycle in which naturally there would be some kind of fire occurrence. In some cases that

may be every 3 to 5 years; in other cases it might be every 80 to 100 years.

So all of that rolled together in the Department of the Interior means that we should be trying to treat something over 2 million acres year. We're not there yet. We're trying as hard as we can to get there, but we're certainly doing a lot more than we did in the past. And I think that we view this as one of the most critical land management problems that we have out there, and that's why we're here today, to tell you where we are and how we hope to be doing better at it.

Mr. DOOLITTLE. I do respect that and that your numbers are increasing, but I don't think they're increasing anywhere near the point where they need to be. It's probably an order of magnitude or two different than what you have in your reports, and I would ask, Madam Chairman, that the Committee's staff ought to propound further questions and line these things up. I just—it seems to me that there's no way this response can meet what the need is.

Thank you.

Mrs. CHENOWETH. Thank you, Mr. Doolittle.

Mr. Peterson.

Mr. PETERSON OF PENNSYLVANIA. My first question is, EPA has organized a Federal advisory committee under the Federal Advisory Committee Act to develop recommended policies to address prescribed burning. It's noted that the committee is made up of Federal and State officials, with but one or two representatives from the private sector. One of the representatives is from the Sierra Club, and they certainly don't represent private landowners. Why was this committee set up with no input from our vast resources of the private sector and private landowners?

Ms. SHAVER. Originally, when we set up this group, it was a followup to the natural events policy, and it was to primarily address the issue on the Federal lands. And there has been much more interest in, "Does this apply to the private lands?" And the way the State and Federal partnership works, we didn't want to preempt the States' prerogative to address the fire issue on the private lands within their States, so we're trying to address the Federal land issue first. We may extend some of that to the private lands, but we will not do that without involving those stakeholders as well. So we're trying to approach this in a piecemeal fashion, and that's why it's shaped the way it is.

Mr. PETERSON OF PENNSYLVANIA. Well, I guess I don't understand your answer when you look at the size and scope of this problem. I think you're saying that you're not dealing with private land, but private landowners who manage huge forests have a lot of information that Government could use. And when you only use State and Federal employees, you're really missing out on a huge resource of people who do this for a living—people who make a profit at it, people who do just as much research and care just as much about their future and probably do more about it than public land does, from history.

And I guess I just—as someone who's been in State Government for 19 years and now in the Federal Government, and in local government 8 years before that—I mean, every time we look for inno-

vative answers we bring in the private sector, who are professionals, too, and don't have any stake but can give a lot of advice. And to set up an advisory panel of just public people, I think, is very short-sighted.

Ms. SHAVER. And I appreciate that, and that was not our intent. Like I said, this particular advisory committee that was set up was to address the implementation issues for ozone, particulate matter and regional haze, and when it was initially set up—it's already up to 85 members—we couldn't get all the stakeholders for the ag-burning issues as well as the private forest issues, and so we would like to work with those stakeholders separately. So that's one of the reasons we had broken it up the way we have. It was just the sheer numbers of it.

We will be running any policy that this sub-group develops or recommends by the larger subcommittee, but, certainly, we do intend to seek broader stakeholder involvement from the private sector before the policy would be extended to them.

Mr. PETERSON OF PENNSYLVANIA. Well, I would hope; I would hope that is the case, but I think you're passing up a huge resource—even academia; it doesn't appear academia was included.

The next question is—I think Congressman Doolittle just expanded on the scope and immensity of this problem, and I was on the western tour as an easterner a few weeks ago and saw the amount of the forest that was burned—the 100,000 acres. It was pretty awesome, and then when you saw the huge amount of the forests we flew over in choppers, where one-third of the forest is dying, and I was told another third of it probably will die, and the fuel load that's there, and the problem and the immensity.

I guess I would suggest to all of you, your budget requests, in my view, do not represent even asking for what is needed to begin to address this problem. And you know, from my 19 years in State government, I always judged departments on their budget requests, what they asked for, if they really were serious about solving a problem, and it's my view that your budget requests are very inadequate to address this problem, and you're giving us lip service.

Mr. DOUGLAS. Sir, I respectfully disagree. I believe that the budget we've submitted to the Congress in 1998 and what we're proposing internally in the administration for future years now is pushing the envelope in terms of our ability to actually use those dollars effectively. We're pushing aggressively, and as you know dollars are not easy to come by, both within the Administration side and our ability to get dollars into the President's budget, and then the appropriations committees, in living within the ceilings that they are living within, have made them available to us.

I think that dollars are not really our problem at this point. We do have some other resource constraints. We need, badly, more skilled people—ecologists, fire fighters, planners, economists, and so on, to do a lot of the analyses we need. We need to get, basically, our capabilities up.

I think the dollars, from everything that we've seen, and we've been working together between the two departments very closely on this, are coming along. But we can't turn on a dime, you know, and I think that we need to be careful about pumping too much

dollars in and seeing those not used as wisely as they ought to be. So, I'm very optimistic on the dollar side right now.

Mr. PETERSON OF PENNSYLVANIA. I'll yield to Congressman Doolittle.

Mr. DOOLITTLE. You know, let me just say to you that that testimony flatly contradicts what we heard in Sonora, where we heard the Forest Service officials testify that money has been sharply reduced for the timber sale program, for example, and therefore the sales cannot be prepared as they used to be and that is resulting in less timber being cut.

So, how do you—I realize you're with the Interior Department, not the Forest Service, but we see this going on fairly widespread in the central Sierras and I cannot, you know, hearing that the budgets are being increased—they're not being increased; they're being cut back. Now there's always plenty of money once we have the forest fire. We'll spend whatever it takes to fight it; that's great. But, boy, don't get the timber sale program going because that's looked upon as an undesirable program, and we've got to cut back to save money on that.

Mr. DOUGLAS. Let me let the Forest Service answer that specific question, but I want to clarify. I was referring to dollars that we're requesting for fuels management through the fire program, not other land management dollars that may, in one way or another, relate to this particular program. That was the nature of my answer.

Mr. DOOLITTLE. OK.

Mr. DOUGLAS. I'll let the Forest Service talk about the larger issue.

Mr. DOOLITTLE. Well, I'm on Mr. Peterson's time.

Mr. PETERSON OF PENNSYLVANIA. Go ahead; you can respond.

Ms. LAVIN. Mr. Peterson, Mr. Doolittle, I would like to say that I represent the full budget of the Forest Service, but I do not. I represent a major portion of that budget, but that portion is in fire, and I would agree with Jim Douglas that in fire it is not a question of adding additional dollars when we're looking at the prescribed fire program.

We are very concerned that we do not have enough people and we do not have the expertise, so we're looking at other ways in which we can increase that expertise. We're working with the State of Florida, which is going to testify later. We're working with the State of Florida to work on having improved training for both the State and the Federal people who will be conducting prescribed fire.

Remember that we always look at the fact that all of the prescribed fire program is for sustainability of our forests, and that's the only reason that we look at the fire program or work toward that. And it does involve timber, and it does involve timber management.

Mr. PETERSON OF PENNSYLVANIA. I agree with the Congressman from California, though, that if we're going to deal with the forests appropriately, it's not just fighting fires and prescribed burns. It's also managing that resource and making sure that land that has three-times the stems that it should have is adequately addressed. I mean, there's a whole lot to this, but I know we have a huge anti-

cut-down-a-tree group that thinks cutting down a tree is some sinful thing and that we shouldn't do that; and they're part of the problem, but we all have to deal with them.

Mrs. CHENOWETH. Thank you, gentlemen.

I want to say that we have two votes up; one is on House Resolution 255, ordering the previous question, and then we'll have a vote following that on the rule. And after that we will return, and I will ask my round of questions then, so I need to have this panel of witnesses remain. But I will say that our Committee will be temporarily recessed for 30 minutes, and that will give you a chance to get something to eat. Thank you.

[Recess.]

Mrs. CHENOWETH. The Committee will come to order. I thank the panel for waiting. Like I say, this does take a fair amount of patience to work in this body and to become a part of it through your willingness to be witnesses, all of you, and I thank you very much for your patience.

I do want to say that one of the reasons that the Chairman called this hearing was our—and I want to direct this particular statement and question to Mrs. Shaver. One of the reasons that the Chairman called this hearing was because, while we have heard Ms. Browner testify that agricultural burning—and we heard her testify to this in the Ag. Committee—agricultural burning would be exempt from the standards, as well as—now we're hearing today—that prescribed burns by the Forest Service would be exempt.

And while that would normally, one would think, give us a fair amount of comfort, our concern is that it puts a lot more pressure on our point-source emitters, such as our utilities and private industry. And that's why we're so concerned, because of the—in fact, this weekend I was in Denver giving a speech, and they are claiming that they are impacted by the smoke and smog that is coming in from southern California.

And so it looks like, certainly in areas up in the Northwest where I come from that need to be protected because of their wilderness qualities and because of the national parks up there, it looks like it's going to severely impact our western part of the country.

And I have some photographs here that I wanted to enter into the record, and I do want to say that for record, as Chairman, as I enter these photographs, that I will attest to their accuracy and to what I testify; I will attest to that under the penalty of perjury.

[The information referred to may be found at end of hearing.]

Mrs. CHENOWETH. The first photograph—these photographs have to do with the prescribed fire that was done in the fall of 1996 by the Department of the Interior. This was the Coggins fire in the Whiskeytown Recreation Area near Redding, California.

Are you familiar with that fire, Mr. Douglas?

Mr. DOUGLAS. Only in very, very general terms. I know they've been doing some treatments in the park there and have a series of burns that they have done and will be doing, but that's as much as I know at this point of the specifics.

Mrs. CHENOWETH. Well, the photos were taken on September 19 of this year, and this is the first photograph, and I think you have a copy of the photos there.

Mr. DOUGLAS. Right.

Mrs. CHENOWETH. Mrs. Cubin, do you have a copy of the photos?

Mrs. CUBIN. No, Madam Chairman.

Mrs. CHENOWETH. OK.

Photo No. 1 shows the edge of the fire area and the adjacent underburned area, while photograph number 2 shows a portion of the fire area, and it does not appear that any fuels were removed before the prescribed burn. And these photos clearly show that there's a lot of small trees growing underneath the larger trees, creating ladder fuels. These photos also show that the fire killed many of the larger trees, as you can see in photograph No. 3 and photograph No. 4.

What was the prescription for this fire?

Mr. DOUGLAS. Ma'am, I can't tell you precisely the prescription at this point. I'm not familiar with that. I'd be happy to provide that for the record.

[The information referred to may be found at end of hearing.]

Mr. DOUGLAS. I will tell you that it's my understanding that this fire was conducted within the prescription—it did not go out of prescription—and the purpose of the fire was to achieve ecological benefits. And, of course, what happens when you have fire is that some trees are killed, some trees are damaged. That's part of the natural events within a healthy forest. And so it's not surprising to us that some trees would die.

It looks to me—and we can get, certainly, more details for you on this particular fire—it looks to me like it burned hotter in some areas than in other areas, and perhaps there were some localized hot spots that killed a few more trees in one spot than it would have in another area. And, again, that's what would have happened naturally, that fires do not burn uniformly across the landscape, but they spot, they burn intensely, then they die back.

And so we would expect to see this as a natural kind of occurrence. If the fire had been started, say, by lightning instead of by management, you'd see the same kind of pattern of just a variety of effects throughout the forest. You know, some big trees die; some big trees don't die. And that's the point of trying to use fire in a place like this; it is to re-create the kinds of natural conditions that occurred for so many hundreds of years in that type of forest.

Mrs. CHENOWETH. Well, this is my major concern because we do have a ladder fuel situation here, and it would create a tremendous potential for an explosive fire which really messes up our air quality standards. In fact, just September 25 of last week, we saw another eruption in this same area of the fire, which created an awful lot of smoke and haze and extended over a long, very wide area.

So, that, combined with the fact that we may be creating more fuel that is more explosive, while still trying to contain our ambient air quality emittents, is creating a conflict that I worry about greatly in the Northwest.

I also want to show—is there a graph there? Yes, air quality graph.

Mr. DOUGLAS. Madam Chairman, if it would be all right with you, I think it would be helpful for us to provide some further information on this particular fire for the record——

Mrs. CHENOWETH. All right.

Mr. DOUGLAS. [continuing] and perhaps we can provide some information to interpret each one of these pictures and help the Committee understand what the park's objective was.

Mrs. CHENOWETH. All right. I appreciate that, and I'll look forward to it.

[The information referred to may be found at end of hearing.]

Mrs. CHENOWETH. For Mrs. Shaver—as you can see, the little red dots on that map indicate the national parks and the wilderness areas where these class I standards will likely be imposed.

[The information referred to may be found at end of hearing.]

Mrs. CHENOWETH. The next graph shows—Bill, can you show her the next graph? The next graph shows the 100-mile radius of control of the air quality out from those national parks, wilderness areas, and which may be imposed in our class I areas.

[The information referred to may be found at end of hearing.]

Mrs. CHENOWETH. And then the next graph then shows the 250-mile radius that is also being talked about for imposition out from these areas, and, as you can see, that covers most of the United States.

[The information referred to may be found at end of hearing.]

Mrs. CHENOWETH. Now the 100-mile radius really impacts the Northwest and has a pretty serious impact across the Nation, but the 250-mile radius for a class I impact would be most of the Nation. So, we're seriously concerned about the impact of prescribed fire, agricultural fires, and point source emittents.

Mrs. Shaver, one of my concerns, too, is our elderly people who, a lot of times, in the summer time, turn off their air conditioners because they can't afford to pay for the additional utility bills. And we're almost defeating ourselves when we realize that a lot of our older people die in the extreme heat. And so while I think it's laudatory that we're trying to help the asthmatics and, of course, the younger children with respiratory afflictions, we tend to ignore our elderly, I think, with this program.

And the reason that we see the combination here in this hearing of the natural resources, plus your proposed rules, is the fact that we are very concerned about the point source emittents that normally would have come in under your standards, but with prescribed fires or runaway fuel fires, which can happen with the fuel load that you've heard Mr. Doolittle and various other people talk about, our forests are at a point now where it's not easy to control those fires at all, and so that is our major concern.

And with that, I'd like to just give you the time necessary to address that.

Ms. SHAVER. Well, I guess there are two issues. One, of course, is the regional haze rule, which addresses primarily the class I areas, and as a part of that particular rule the State and locals would be able to establish a baseline which would incorporate the natural role of fire. And then, certainly, in terms of making progress on improving visibility over the long time—say 10 to 15 years—then they would work from the baseline, which incorporates the role of fire.

Certainly we are concerned about the health of our children, as well as the elderly, and certainly the health of everyone, but particularly those sensitive populations. That's why we are working

with the States as part of this policy to do smoke management programs which mitigate the public health impact of these prescribed burns, and we think with adequate planning and proper operation and implementation of these plans, for the most part you will not see significant air quality violations under those conditions.

Where we do have the data now, we have not seen that, but, certainly, we will be placing our monitors in the high population areas and, in fact, working in those areas to make sure that we meet the air quality standards as best we can, which is, of course, the purpose of the policies that we are developing.

Mrs. CHENOWETH. Could you give us a little more information on your smoke management policy and program?

Ms. SHAVER. Well, a lot of the States already have very good smoke management programs, and I think you'll hear from Mr. Peterson a little bit later about the smoke management program that they have in Florida, where they burn a significant number of acres each year and where they have not had violations of the particulate matter standard. There are other States, like Oregon, which have a good smoke management program as well.

And so these programs account for the meteorological conditions. There's a mechanism for authorization of the burns and certainly provisions for training of this kind for the fire managers. So, we're looking at those smoke management programs being implemented in advance of the burns, and certainly in cooperation with the land management planning, as well as the burn plans that occur.

So, I think that with the adequate planning up front, and the organization there and the cooperation, that we will be able to meet the air quality standards on a consistent basis.

In terms of where we might not be able to, or where the meteorological conditions change and a fire gets out of control, you do have a violation of the air quality standard. We certainly don't want to penalize the point sources in that area for that condition, and that will be another aspect of the policy as well. Whether it's a part of the designation or non-designation process, if you will, that will certainly be an aspect of it.

Mrs. CHENOWETH. So then there will not be a cumulative effect that will be imposed on the point source emitters?

Ms. SHAVER. We will not be penalizing the point source emitters for something that happens under the prescribed burn policy. That's correct.

Mrs. CHENOWETH. And that would also be true of agricultural burning, I take it, based on Ms. Browner's testimony in front of the Ag. Committee.

Ms. SHAVER. Right. We are not targeting agricultural sources. We are working with USDA's agricultural air quality task force to address the ag-burning issue, and that will be taken up with that committee the end of October. That would be the first time that's been discussed with that group, that's basically made up of agricultural stakeholders, and we are working with them on the ag-burning aspect of the policy.

Mrs. CHENOWETH. Well, while you do offer us some degree of comfort here, nevertheless, there's a basic, philosophical concern that I have, and that is that the government feels that their activities may be worthy of exemption, while private industries' activities

may not be, and I think we're moving into some dangerous territory here. And we've taken the blinders off of justice, perhaps, and I'm very concerned about that, but I do appreciate your testimony.

Ms. SHAVER. Thank you.

Mrs. CHENOWETH. I do want to say that I've received a letter from the mayor of a little town in Idaho—Salmon, Idaho—and I, without objection, will enter that into the record.

[The information referred to may be found at end of hearing.]

Mrs. CHENOWETH. And so I'd like to now turn the mike over to Mrs. Cubin, from Wyoming.

Mrs. CUBIN. Thank you, Madam Chairman. To avoid any redundancy, since I've just very recently arrived, I will, if it's all right, submit questions in writing. Thank you.

Mrs. CHENOWETH. One more question that I wanted to ask was about wood-burning stoves. Will that be exempted at all? Because that can create a national cumulative effect, or a regional cumulative effect.

Ms. SHAVER. We have some wood-burning stove policies. I'm not familiar with the specifics of those, and, actually, some of those are occurring at the local levels; there are local policies or regulations concerning those. I would be happy to answer the question for the record regarding that, but the wood stove policy would not be covered by these policies we've been talking about today.

Mrs. CHENOWETH. OK; forest fires are allowed, but wood stoves are not.

Ms. SHAVER. No, I did not mean to imply that. I'm sorry. I just said that the policies that we are talking about today would not cover wood stoves.

Mrs. CHENOWETH. OK, let me—perhaps I didn't hear it correctly. Let me ask it again. With regards to the imposition of standards for emittents from smoke, forest fires are allowed and they would be exempted, but wood stoves would not be exempted, right?—although it's basically the same emittent.

Ms. SHAVER. No ma'am; I did not mean to imply that.

Mrs. CHENOWETH. Imply what?

Ms. SHAVER. That forest fires were exempted and that wood stoves were not.

Mrs. CHENOWETH. Prescribed forest fires are exempted.

Ms. SHAVER. No, ma'am.

Mrs. CHENOWETH. Well——

Ms. SHAVER. Wildfires that are not part of a prescribed burn are exempted under the natural events policy. Actually, they're not exempted. We're just saying that where you have wildfires that are burning out of control, they're covered by our natural events policies. Any violations of the standards that occur because of those are not used in determination of whether or not an area is designated "non-attainment."

OK, under the prescribed burning policy, we're saying that you have to be in accordance with your plan, your smoke programs, and this type of thing, and we don't anticipate that there would be air quality violations because of a prescribed burn. In the event that there was, or something like that, then we would address that situation. We would not penalize that area in terms of non-attainment designation, where a fire got out of prescription, or something like

that, as long as you were following the prescription as it was designed.

Mrs. CHENOWETH. So what we're talking about, then, is the designation of an area rather than——

Ms. SHAVER. That's correct.

Mrs. CHENOWETH. All right. Within that area, if a prescribed fire should occur and it creates an air quality situation where it violates the standards, then everything in that region would have to shut down because of the prescribed burn or the natural wildifire.

Ms. SHAVER. Not if you're not designated non-attainment. No, I don't think that's the case. You would not require those sources to be shut down.

Mrs. CHENOWETH. All right. I will—I don't think we're connecting on the same frequency here at all, but I——

Ms. SHAVER. I understand, and I apologize for that. I'd be happy to try to answer in writing or try again now.

Mrs. CHENOWETH. OK. I think through most of this hearing we understood that prescribed burns conducted by the Secretary of Interior or Secretary of Agriculture would be exempt; that would be permissible. And as I heard in the Ag. Committee the other day, those fires—prescribed fires for agricultural fields—would also be exempt—or allowed. Are we having a problem with the word "exempt?" Is there something I'm not seeing here?

Ms. SHAVER. Well, exempt is not a word, I guess, that I would choose to say in those things. I guess what I would say is, where a State has a smoke management program in place and where the land management agencies have done their land management planning, where they have done their burn plans, they've gone through the NEPA process, and where those are in place and are being followed, then the agency would be—in case there is a violation under those circumstances where those plans are being implemented—then we would not count those data toward non-attainment designations.

Now if a State did not have a smoke management program in place, if they did not follow the burn plans, or cases like those, then we would still have our ability to designate those areas as non-attainment. So, I would say it's not a free ticket to strike matches. There needs to be a lot of planning done up front. There needs to be a lot of evaluation of the need for that, how to do that, and to make sure it's done in compliance with the planning that we're talking about.

So that's why I'm concerned about the use of the word "exemption."

Mrs. CHENOWETH. So we are—so EPA will be asking the land management agencies to perform an EIS on their smoke management program, on their prescribed burn programs?

Ms. SHAVER. I may let them answer that.

Mrs. CHENOWETH. Mr. Douglas.

Mr. DOUGLAS. Yes, what this is predicated on is going back to something we talked about before the break, and that is everything needs—all of our actions need to be based on land management plans. The planning process is a multi-tiered process. It starts at the most general level. A strategic level would be a forest or a national park or a BLM area and then gets progressively finer as

we're talking about smaller and smaller pieces of ground, and maybe particular activities, types of functions.

That planning process is subject to the National Environmental Policy Act. Whether or not an EIS, itself, is done, it is subject to NEPA and an environmental compliance is done. An environmental compliance involves public participation and evaluation of environmental consequences, of different alternatives, and a finding of whether or not there's significant environmental impact, and so on.

So, we don't necessarily do an EIS in every case, but we follow the National Environmental Policy Act in ensuring that the environmental consequences are identified, of the various alternatives, and that the one selected is appropriate. That underlies, then, our—in the case—if we're bringing this specifically back to fire—underlies our management decision to use fire in certain circumstances: "Yes, that's appropriate. This is how we're going to manage that fire." We get into the prescription that we're going to use, weather conditions, fuel conditions, and that sort of thing.

Those are all of the types of things that we're committed to is that we will go through planning processes and take every step we can to minimize our emissions—burning techniques, times of year, meteorological conditions, and that sort of thing, in order to keep from putting more than absolutely necessary into the air.

Mrs. CHENOWETH. Mr. Douglas, I think you're right, because it is a major Federal action. And let me ask you, have you done an EA or an EIS under NEPA on the other prescribed burns?

Mr. DOUGLAS. Absolutely. There's always environmental compliance. Environmental compliance doesn't mean that there's necessarily an EIS done, but the NEPA is followed and the appropriate findings are made. In major cases, it results in an EIS. In smaller actions, it's an environmental assessment, but environmental compliance is done in each and every case.

Mrs. CHENOWETH. Thank you.

Ms. Shaver, is the EPA prepared to do an environmental impact statement, especially if you impose the 250-mile radius criteria on all of these areas? As you can see from the overlays there, that decision is a major Federal action requiring an EIS. Has EPA, or is EPA preparing to do an environmental impact statement on this, on the new standards?

Ms. SHAVER. On the new standards? I'm not——

Mrs. CHENOWETH. On the environmental impact of the new standards.

Ms. SHAVER. I'm not sure I can answer that today.

Mrs. CHENOWETH. I think that the courts have said, any time there's a major Federal action by an agency that there must be an EIS, so could you let us know?

Ms. SHAVER. Sure.

Mrs. CHENOWETH. OK.

Mrs. Cubin, do you have any other questions?

All right, I want to thank this panel very much for your patience and for your time. I, again, apologize for all the votes that have taken us away. This is no way to run a railroad sometimes, I think, but it happens, and it's the best system in the world. But, thank you very, very much. And I will be submitting additional questions

to you, and the record will remain open for about 3 weeks. Thank you very much.

I want to call the next panel of witnesses up. Mr. Earl Peterson, Florida State Forester, chairman of the National Association of State Foresters Fire Committee in Tallahassee, Florida; Mr. William Dennison, Plumas County Supervisor, Board of Supervisors, Quincy, California; Mr. Robert Mutch, Missoula, Montana, and Dr. Robert Pearson, Radian International LLC in Denver, Colorado.

Gentlemen, thank you very much for your patience, but Mrs. Cubin and I will make up the difference. These are the days toward the end of the year when things get a little wild out there, but you are contributing to a very, very, very important record, and I thank you very much for your expert testimony.

So before we get going, I wonder if you wouldn't mind standing with me and taking the oath.

[Witnesses sworn.]

Mrs. CHENOWETH. We'll begin with Mr. Earl Peterson. Mr. Peterson.

STATEMENT OF EARL PETERSON, FLORIDA STATE FORESTER, CHAIRMAN, NATIONAL ASSOCIATION OF STATE FORESTERS FIRE COMMITTEE, TALLAHASSEE, FLORIDA

Mr. EARL PETERSON. Thank you, Madam Chairman. I appreciate the opportunity to appear before the Committee. I look forward to sharing with you some observations about the use of fire as a management tool, both in Florida and nationally.

As the director of the Florida Division of Forestry, I'm involved—my agency's involved—with the management of over 1 million acres of land in Florida, purchased by the Florida taxpayers to ensure that some of the unique ecology enjoyed by the citizens and the millions of visitors who come annually, each year, will be there for generations to come.

Without hesitation, I can say that one of the primary contributors to the current State of Florida's wildlands has been fire. In Florida, we call the use of fire as a management tool "prescribed fire." And like a prescription issued by your personal physician, the medicine is aimed at curing a specific problem, while at the same time it can and often does have side effects. We must work to minimize those as they affect the other parts of the body. The trick is to make sure that these side effects are not worse than the cure. So too, with prescribed fire.

Fire's role on State and private lands in Florida has been that of the sculptor, molding and shaping the system over many thousands of years. As a result, many of the flora and fauna have come to depend on periodic fire for their existence. If this element is excluded, the result will be a system that is far less diverse in both plants and animals. In addition to this, many of the timber species that the forest industry depends upon shall disappear and will not survive.

Many other forest and grassland ecosystems also evolved with fire, including much of the southeastern pine forest, as well as many coniferous forests in the western United States. Recent research has also indicated a larger role for fire in regenerating hardwood species, such as oak. Each type of forest evolved with dif-

ferent types and intensities of fire, so prescriptions must be carefully matched to forest type. In some instances, prescribed fire would not be the preferred tool for management on many of these stands.

Floridians place such a high importance on prescribed fire, that in 1990, the legislature passed statute 590.026, the Florida Prescribed Fire Act; you have copies in your packet. The law provides civil liability protection for responsible prescribed burners. You also have an article in your packet from the Journal of Forestry, May 1992, that explains this act. This means that as long as the burners adhere to the law and associated administrative code, they cannot be found civilly liable for the potential negative effects of their prescribed burns, including smoke.

The South's fire heritage has allowed it to lead the Nation in promoting and practicing the art of agricultural and prescribed burning, and Florida leads the South, as well as the Nation, in prescribed fire activities. In 1996, Florida burned 2.2 million acres, most of it under canopy, and issued over 118,000 permits to reach this objective.

We're also cognizant of the fact that we're graced with both a favorable climate and topography to accomplish the mammoth amount of prescribed burning that is necessary to keep up with the rapid vegetative growth on our wildlands. In areas where mountainous terrain tends to trap smoke from wildfires for days, weeks, and months at a time, the amount of burning done in Florida could not be accomplished there.

Coupled with this, the policy of fire exclusion over the past 75 years has resulted in an enormous fuel accumulation from downed timber, insect, and disease attack. The future of fire in these areas seems to be almost an impossible task. Because of this we have, curiously enough, tended to place the responsibility back in the hands of fire to solve these problems. Once the fuel loads get to the point where we can no longer control the wildfires they start, the system is swept with catastrophic fires that can leave the land scarred for centuries.

In short, we have two choices in managing our wildlands: exclude fire until the system is overloaded and disaster strikes, or manage both wildfire and prescribed fire in a balanced system. Floridians have chosen the latter solution. In addition to the prescribed fire act of 1990, almost all of our 67 counties have passed resolutions or ordinances in support of prescribed fire. In March of this year, Governor Chiles and the Florida Cabinet named the week of March 11 Prescribed Fire Awareness Week.

There are mechanical and chemical methods that can duplicate some of the positive effects of prescribed fire. Reduction of fuel load to reduce the potential negative effects of catastrophic wildfires can be accomplished to some measure by thinning the overstocked forests. This process is very labor-intensive and in some instances can be very costly, and there isn't a market, always, for the material which is to be removed, in the way of poles and firewood. However, such methods may be necessary where prescribed fire has not been used as a regular management tool, and fuel loads are too high to allow for immediate reduction by fire.

The negative side effect of prescribed fire is the impact resulting from smoke. You are aware, as you've heard here today, of EPA's plan to revise the National Ambient Air Quality Standards and the visibility standard. These changes to the standard could have a significant impact on the use of prescribed fire, depending how the EPA intends to treat the contributions made by prescribed fire.

We believe the intent of the Federal Clean Air Act is to prevent the deterioration of air quality from human causes. Since fire is part of the natural system, as pointed out earlier, and necessary for the survival of our wildlands, we believe that the resulting smoke should be considered natural and excluded from consideration if these is an exceedance of the standard.

Prescribed burn practitioners are trained to reduce the impacts of the smoke from prescribed burning to a minimum. This will not eliminate the possibility of exceedance of the air quality standards or the visibility standard, but we believe the number of potential problems will be held to a very minimum. The reason for this is simple. Prescribed practitioners understand that the future of fire depends on the good will of the general public and their responsible use of this important tool.

It is important to note that in some of the areas of the country, there is a limited public tolerance of smoke from prescribed fires, and this has led to efforts to limit or end the practice. Many of these decisions will be in the hands of State air quality agencies, along with other State agencies.

NASF and its member State Foresters are working and will continue to work with State and Federal air quality officials to craft regulations that will allow this ecologically important management tool to continue.

Thank you very much.

[The prepared statement of Mr. Earl Peterson may be found at end of hearing.]

Mrs. CHENOWETH. Thank you very much, Mr. Peterson.

And we'd like to hear now from Mr. William Dennison, our Plumas County Supervisor. Mr. Dennison.

STATEMENT OF WILLIAM DENNISON, PLUMAS COUNTY SUPERVISOR, BOARD OF SUPERVISORS, QUINCY, CALIFORNIA

Mr. DENNISON. Thank you, Madam Chairman, and staff. I appreciate your tenacity to stick with this today. I've submitted a written statement for the record, if you would, please.

My goal is to convey to you both support and concerns for the utilization of prescribed burning on national forests and national parks. Our support is based on the belief that prescribed burning must be reintroduced into the national forests if we're to attempt to restore their health. You've heard a lot about that today.

The concern is that prescribed burning will be utilized in northern California without first removing heavy fuels. The photos which you showed earlier today speak to that concern that we have. My written testimony contains statements about the amounts of material that must be removed prior to introducing fire, in our neck of the woods, at least.

Next, we find it difficult to believe that the new PM2.5 requirements under the National Ambient Air Quality Standards can be

met if prescriptive burning is used on as many areas as necessary to make a difference in our forest health, particularly without emphasis on mechanical removal of fuels prior to burning. We've had to curtail open burning in parts of Plumas County to even meet the PM10 standard, and without significant amounts of prescriptive fires to date.

If National Ambient Air Quality Standards are broken by prescriptive fire, based on recent announcements by air management districts and now the proposed EPA regional haze requirements, there is good reason to believe that it will businesses and individuals who will suffer financially when the standards are violated. We have statements from our air management district that use of wood stoves, in fact, in our area, already are under jeopardy.

In addition Madam Chair, I have included testimony in my written statement based on the July 30th Huffer fire on the Lassen Volcanic National Park that sheds uncertainty on the Department of Interior's ability to effectively control fires through their current management of prescriptive, natural fires. We've listed six pollution and financial issues about the Huffer fire that should be addressed through a review of that policy.

A recent quote that covers our point most succinctly was made by Neil Sampson, president of Sampson Group, in a recent magazine article in which he said, "Fire introduction is supported by a broad array of scientists, foresters, and conservationists . . . but it's not as easy as it sounds, and to simply propose lighting fires on most western forests is irresponsible and destructive."

We're concerned that there are some within departments and agencies who will peddle the medicine without revealing the costs. I'm talking about the real costs of the fire prescriptions if they're administered in a way that will maximize the goal of obtaining healthy forests that will give the less prone wildfire effect, while assuring that air pollution and escaped prescriptive fires do not impact our citizens, as you suggested they might.

We are on the right track with the reintroduction of fire, but let's recognize and resolve at least five conditions that have been posed by the Quincy Library Group, which prevent the immediate use of prescribed fire at large enough scale to address the hazard areas, at least where I live.

First, the QLG says the current high fuel loads make it too dangerous to use prescribed fire in any but the most favorable conditions, and even then it takes only a small weather change to put those out of limits. To be within acceptable limits, we must first reduce fuel loads.

Second, they say the continually reduced availability of expert fire managers makes it more difficult than ever to manage prescribed fire safely and effectively.

Third, the historic rate of prescribed fire usage is about 10 percent of the treatment required, and that has been done on the easiest terrain and the least hazardous fuel areas.

Fourth, major components of the current fuel load are unnaturally thick stands of small fire ladder trees—that you talked about—that carry ground fires up into the crowns and kill the large trees that would otherwise be nearly fireproof. The lower material, again, must be removed.

Fifth, the QLG says, significant increase in the use of prescribed fire comes into direct conflict with the air quality standards. In the long run, this conflict must be addressed in a way that provides those benefits and processes that only fire can supply.

Meanwhile, the Quincy Library Group has said that it will take at least 10 decades—I'm sorry—at least a decade of thinning and other fuel treatment by non-fire means to make it feasible to employ prescribed fire at whatever level is found to be necessary for sustainable, long-term health.

In summary, we share the urgency to reintroduce fire into our forests. At the same time, there are problems with prescribed fires in both national forests and national parks, and conflicts with NAAQS. We respectfully submit that the issues we've emphasized are not new, but they are important and worthy of consideration before the Departments of Interior and Agriculture launch into the prescriptive fire program in northern California.

As noted by Congressman Peterson, the private sector needs to be involved in this process as well. We also emphasize that we do not wish this testimony to in any way cause a stumbling block. We would rather have this as an open door to relate problems, and in which we can work together toward a reasonable use of prescriptive fires. And if I could answer any questions later, I'd certainly be pleased to do so. Thank you.

[The prepared statement of Mr. Dennison may be found at end of hearing.]

Mrs. CHENOWETH. Thank you very much, Mr. Dennison.

And the Chair now recognizes Mr. Mutch.

STATEMENT OF ROBERT MUTCH, MISSOULA, MONTANA

Mr. MUTCH. Thank you, Madam Chairman. I'm very glad to have the opportunity today to meet with this Committee, and especially to talk about the critical importance of combining silvicultural prescriptions, thinning, timber harvest, and fire prescriptions to restore the health to the forested ecosystems of the western United Sates.

I base my observations today on 38 years in the Forest Service, 17 years at the fire laboratory just over the mountain from Idaho in Missoula, and 21 years in operational fire management.

A recent survey conducted by Forest Service research has indicated that 5 million acres are burned annually in the United States by Federal, State and private prescribed burners. Three-and-a-half million of this 5 million acres, or over 70 percent, occur in Mr. Peterson's southeastern part of the country.

When one considers the area managed by just the Federal agencies, an annual nationwide prescribed fire program of just 5 million acres for all burners is woefully inadequate. This is especially true in the West, where the prescribed fire programs of Federal agencies have been extremely modest in the past.

Let's cut to the chase by referring to this first bar graph. This graph depicting wildfire acreage burned in the 11 western States managed by Federal agencies between the years 1916 and 1996 should be of concern to everyone in this room, and it should be of concern to the American taxpayer. Look at this almost perfect U-shaped curve. For decades, Federal agencies went before Congress

and said, "Give us more money for bigger and better fire departments, and we will continue to reduce the area burned by wildfires."

That strategy worked very well for several decades until we hit the point of diminishing returns in the middle of the 1980's, when widespread drought, insect epidemics, and our natural fuel accumulations reached a critcal point. And we can see an escalating problem in wildfires at the latter part of this century equal to what was occurring during the early part of the century, 1900 to 1919.

The next graph shows very clearly what a forest looks like after being affected by what some have called the grand ecological experiment, the attempted exclusion of fire from fire-adapted ecosystems.

Here is the same camera point on the Bitteroot National Forest between 1909 and 1989 and photographed periodically over those many years. One can easily see, in that upper left-hand photograph, the low intensity surface fires that would have characterized that kind of open forest with one-foot flame lengths, historically.

Compare that upper left-hand photo with the photo in the lower right-hand corner, taken in l989, with dense understory thickets of Douglas Fir, the ladder fuels that you have talked about earlier, and are contributing to crown fires today with flame lengths of over 100 feet.

If you had a home in the Bitteroot Valley, would you want it in that site pictured in the upper left-hand corner or in the lower right-hand corner? Or if you had a daughter or a son fighting fires in the West, would you want them fighting fires in the upper left-hand photograph, with open, grown, low-intensity fire conditions, or would you want them fighting fire in the photograph illustrating today's sorry state of affairs?

The next poster will show you current and projected prescribed fire programs of the four Federal agencies. The agencies know that an expanded burning program is necessary, and we've heard that testimony today. And several are projecting a doubling or tripling of their program by the year 2000 and an increase beyond the year 2000 that's already been discussed.

But this increase in prescribed fire, Madam Chairman, will not be easy, and a double standard impairs the ability of agencies to increase prescribed burning easily. Perhaps we will have some time later to examine this double standard in more detail.

I would like to conclude with the last poster now, with six lessons learned that can be applied in dealing with the declining forest health issue in western forests.

First, most forest ecosystems' plants and animals are adapted to recurring fire. The beautiful elk herds in the Selway Bitteroot wilderness in Idaho are dependent in large part in their diet on red stem ceanotheus. The germination of red stem ceanotheus seeds is triggered by fire that cracks the seed coat so that the seed can imbibe moisture and germinate. Mechanical treatment will not do anything for those beautiful elk herds in the Selway. They evolved with periodic fire.

No. 2, it is not a question, as we know, of if a fire will occur. The question is only one of when and where. Fires will occur, and there will be smoke.

No. 3, we can either pay now for a more balanced program of fire prevention, fire suppression, and prescribed fire use, or we can pay a dear price later, as we have been paying recently, for escalated losses of people, property, and their natural resources in uncontrollable wildfires.

Four, and most importantly, silvicultural prescriptions, thinnings, harvest cutting, and prescribed fire must be integrated on a much larger scale to restore the health of fire-adapted ecosystems. This will require many strategies, including removal, to accomplish this objective. Many stand conditions, as we've heard today, are so highly flammable as a result of fire exclusion that prescribed burning without prior silvicultural treatment would be tantamount to igniting a conflagration. We need both—mechanical treatment and prescribed treatment.

Five, fortunately, silvicultural cutting treatments designed to maintain healthy forests, often will pay the way for followup hazard reduction treatment by burning.

And, finally, the buck needs to stop here. Risks for expanded prescribed fire projects must be shared among all stakeholders: agencies, the politicians, and the public.

That concludes my verbal testimony, and I thank you very much, Madam Chairman, to present these issues to the Committee today.

[The prepared statement of Mr. Mutch may be found at end of hearing.]

Mrs. CHENOWETH. Thank you, Mr. Mutch.

The Chair now yields to Mr. Schaffer, from Colorado, to introduce our next witness.

Mr. SCHAFFER. Thank you, Madam Chairman. I'm pleased to introduce Dr. Robert Pearson. Dr. Pearson is a scientist in the area of western region air quality, and has been for the past 25 years. In fact, he served as an appointed member of the public advisory commission to the Grand Canyon Visibility Transport Commission for 4 years. I'd like to mention that Dr. Pearson received his Ph.D. in remote sensing of natural resources from Colorado State University in Fort Collins, Colorado, and Dr. Pearson, we look forward to your testimony.

STATEMENT OF ROBERT L. PEARSON, RADIAN INTERNATIONAL LLC, DENVER, COLORADO

Mr. PEARSON. Thank you, Congressman, and I might add that I was doing my graduate work in the College of Forestry and Natural Resources at CSU in Fort Collins. So, while I'm not a forester, I do have a fair acquaintance with some of these issues.

The Grand Canyon Visibility Transport Commission was set up by Congress as a result of the 1990 amendments to the Clear Air Act. The public advisory committee of that Commission was the group that I was appointed to by Colorado Governor Romer. We spent 4 years reviewing the science that had been collected on the subject of regional haze in the West, including new visibility data gathered specifically for the Grand Canyon Visibility Transport Commission.

The public advisory committee then formulated policy recommendations for the Commission to consider. You may recall the Commission was made up of the Governors of eight western States,

plus tribal leaders of several Indian tribes. Throughout the conduct of this scientific study for the Commission, every interest group was represented, including environmental groups, the Federal land managers of the Forest Service, the Bureau of Land Management, and the National Park Service.

On June 10, 1996, the Commission published its findings in its report, entitled "Recommendations for Improving Western Vistas." This report discusses in detail the scientific study that was done and the recommended control strategies for all of the categories of sources of air pollution located throughout the West. One area of much study and discussion by the Commission was the subject of today's hearing, the impact of regional haze on class I areas from the use of fire in forest management, commonly called prescribed burning.

I'm here today to relate some of the information we learned as we struggled to craft a workable regional haze improvement plan for the West, as required by the Clean Air Act. Forest fires, either intentionally set or accidental, release quantities of fine particles made of carbon and other elements in the smoke. These fine particles cause several impacts on air quality.

First, the concentration of fine particles in forest fire smoke may cause the PM2.5 National Ambient Air Quality Standard, recently adopted by EPA, to be violated near the fire. In addition, the fine soot particles in the smoke will affect visibility by both scattering and absorbing light. At times, smoke containing fine particles travels hundreds of miles and across several States.

I can vividly remember seeing the effects in Denver of several California wildfires, and also the 1988 wildfires in Yellowstone. These effects were much reduced visibility and a smoke smell in the air.

During the Commission's study of western regional visibility, we also saw photographs taken at Hopi Point at the Grand Canyon when a small wildfire on the South Rim of the canyon was brought under control and extinguished. Even such a small fire, which lasted only a few hours, filled the canyon with smoke. The point is that even a small fire in or near a class I area can cause dramatic effects on visibility and the concentration of fine particles in the air, similar to the effects seen at long distances from large fires.

The Federal land managers, the Forest Service, and the National Park Service, in particular, told the Commission that they intend to dramatically increase the number and extent of prescribed fires over the next several years to, quote, "catch up from many decades of fire suppression," close quote, by reducing the amount of fuel available to burned by wildfires in the Nation's forests.

The Commission analyzed the effects of this increased use of fire as a forest management tool and concluded the effects on regional visibility could easily wipe out the gains made by all other sources categories combined, and that would include point sources as well as mobile sources. They also include power plants, copper smelters, cars, trucks, and area sources such as fugitive dust.

Note in the Commission's report, they combined all fires, both man-caused and wildfires, into a natural category for our analysis, and that's shown by slide 3, attached to my written testimony.

Such natural causes contribute almost half of the visibility impairment in the West.

To some extent, then, the Commission report is biased by considering smoke from intentional man-caused fires as, quote "natural," close quote. This also, in effect, exempts the smoke from prescribed burns from being considered against your goal in the Clean Air Act of remedying man-caused sources of visibility impairment.

The point is that all of our hard-won incremental improvements in regional visibility across the West could be overwhelmed by the increased use of fire as a land management tool by Federal land manager agencies, even though their contribution is considered, quote, "natural."

One other point needs to be made in this regard. The EPA has recently proposed a set of regulations to protect and improve regional visibility in the U.S. One provision of current law, as well as in the proposed rules, allows the Federal land manager of a class I area to identify a source or some group of sources, some distance away, which could be impacting visibility in the class I area—and Madam Chairman, you were getting at this point a little while ago.

The State in which the source is located would then be required to evaluate the allegedly offending sources for the retrofit of air pollution control technology. In effect, this gives the Federal land manager land use control over lands outside of the wilderness area, despite the fact that wilderness legislation passed by Congress specifically prohibits the establishment of buffer zones around wilderness areas.

The Federal land managers have the authority to trigger cleanup activities on all other sources, while at the same time increasing their own air pollution activities through increased prescribed burns. This apparent "Do as I say, not as I do" philosophy of the Federal land managers suggests a double standard for allowing Federal agencies to emit fire smoke at will, but at the same time requiring others to spend large sums of money to reduce their emissions even a small amount.

While this may sound far-fetched, it has been going on for some time in northwestern Colorado. The Forest Service manager of the Mount Zirkel Wilderness Area accused the Hayden power plant of polluting wilderness areas some 30 miles away. The State of Colorado——

Mrs. CHENOWETH. Mr. Pearson?

Mr. PEARSON. Yes.

Mrs. CHENOWETH. I wonder if I could interrupt you.

Mr. PEARSON. Sure.

Mrs. CHENOWETH. We have to run for a vote—and this is very interesting testimony. I am very sorry. We only have about 3 minutes left to scoot over there, but we look forward to your continuing when we get back.

Mr. PEARSON. OK.

Mrs. CHENOWETH. There's just one vote. It's on a motion to rise, meaning they want to go home.

[Laughter.]

Mrs. CHENOWETH. But we're obligated to make the vote, and so we'll run right over and be right back.

Mr. PEARSON. I understand; thank you.

[Recess.]

Mrs. CHENOWETH. The hearing will come to order—my golly, we're going to get down to business here. We'll resume with the testimony of Dr. Pearson.

Mr. PEARSON. Thank you, Madam Chairman. Let me just conclude with a couple of final comments.

The point I was making when you had to leave for the floor vote was that Federal land managers can indeed influence land use policy outside of their wilderness areas, and I was trying to make the point in concert with the earlier maps that you showed with the red circles around the class I areas, that indeed that is the case right now in Colorado.

In the Yampa Valley in northwestern Colorado, there is the Mount Zirkel Wilderness Area, and the Forest Service which manages that area has accused the Hayden power plant at Hayden of polluting the wilderness area some 30 miles away. The State of Colorado Health Department, along with the Forest Service and the Colorado utilities conducted a $3 million scientific study to determine the sources of visibility impairment in the wilderness. The recently released results of that study show that the Hayden Power Plant was only a minor contributor to visibility impairment in the wilderness.

Despite this evidence, however, the source owners have committed to spending over $100 million to reduce the emissions from that plant. All the while, the Forest Service can go ahead and conduct prescribed burns or allow wildfires to burn at will to reduce forest fuel levels in and near the wilderness area. The other Federal land managers can do the same in other areas.

There's also an irony here that we need to keep in mind, and that is that there's a great concern now about global warming, and fires release carbon as carbon dioxide. It is to be noted that if you burn the forest, you're putting the carbon that is locked up in those trees back into the atmosphere, thus possibly exacerbating the global warming issue. And also, by removing some of this material from the forest, you're reducing the forest's ability to lock up carbon that they would be putting into wood over the next several years.

While I'm extremely concerned that prescribed burns will hamper and even possibly prevent our attainment of the goal that you set for us in remedying man-caused effects of visibility impairment in the West, we recognize that forest fires can and will occur. Therefore, the Federal land managers must take this into account and work out other options for reducing timber in the forest, while still helping us achieve the class I visibility requirements set out in the Clean Air Act.

And with that I will say thank you, and answer any questions you may have.

[The prepared statement of Mr. Pearson may be found at end of hearing.]

Mrs. CHENOWETH. Thank you, Dr. Pearson, and the Chair recognizes Mr. Schaffer for questions.

Mr. SCHAFFER. Thank you.

Dr. Pearson, my first question deals with the second issue that you touch on, which is the ability of land managers of various sorts, with respect to the Forest Service, in particular, to have some impact on the operations of various human activities in other jurisdictions. You mentioned the Mount Zirkel incident, which I'm familiar with. To what extent does occur throughout the rest of the country?

Mr. PEARSON. Well, I'm most familiar with Mount Zirkel, but I'm sure that it has happened elsewhere. Let me say that the Federal land managers' authority in this regard is written into the Clean Air Act as an advisor capacity, but the most recently proposed EPA rules on regional haze make it an out-and-out right, if you will, of the Federal land managers. So, again, I'm most familiar with Mount Zirkel, but I'm sure it can and has happened elsewhere, and will probably happen more with these new authorities.

Mr. SCHAFFER. I want to go back to the questions that I asked of Carol Browner at the EPA with respect to the Grand Canyon Visibility Transport Commission. She said, when I asked, that the findings of that report were somehow built into the new air quality standards, and with the contemplation of a 400 percent increase in prescribed burning, as one who served on that Commission, I'd like to get your perspective on whether the findings of the Commission were acknowledged by the EPA.

Mr. PEARSON. Well, they acknowledge that such a study took place, but they do not in any way, in any major way, anyway, incorporate the findings of the Commission into their proposed regional haze rules. And, in fact, I testified in Denver a week ago before EPA on this very rule and made that comment, that they ignored the Commission's findings across the board when they drafted these rules.

So, I don't know how Carol Browner can say that the Commission's findings are incorporated in the rule, because they simply are not.

Mr. SCHAFFER. Do you think it's appropriate that those secondary standards for visibility should be as stringent as the primary standards that are intended to protect human health?

Mr. PEARSON. Oh, not at all. And, in fact, when the Clean Air Act was first passed by Congress many years ago, the primary standards of the health standards were given much more significance because they are based on protecting human health, whereas secondary standards, those protecting human welfare, must have a lot more flexibility and ability of parties to meet them in an economical and feasible way. So, no, they're not intended to be at all equivalent, and I agree with that.

Mr. SCHAFFER. I'd like you to discuss, if you would, Secretary Babbitt's assessment that the costs of prescribed fire versus the costs of mechanical removal—let me find this. He said that prescribed fire is by far the least expensive method of treating hazardous fuels. He said that the average national costs run about $20 to $30 per acre for fire, while mechanical fuel reduction or multiple treatments can cost $500 to $1,500 per acre.

Can you comment on that from your scientific perspective and background?

Mr. PEARSON. Well, I don't really have any background in the cost of burning a forest versus going in and doing mechanical removal. Let me just say that if one chooses to burn the forest and pollutes the environment as a result, then someone else, presumably private industry, has to then reduce their emissions at a huge cost to make up for this added smoke from the forest. So I think one needs to look at those costs as well.

Mr. SCHAFFER. And one last question, just from an air quality standpoint. Are the EPA's new standards and proposed rules reasonable?

Mr. PEARSON. It depends on who you ask. I think in some regards they are and in other regards they are not, in my personal opinion, and——

Mr. SCHAFFER. That's what I'm after.

Mr. PEARSON. [continuing] we could get into a discussion as to which is which.

Mr. SCHAFFER. From your perspective.

Mr. PEARSON. Well, in terms of the PM2.5 standards, I think they're probably needed to protect human health but not at the levels set by EPA, they are too stringent. In terms of regional visibility, that is a goal that Congress set to improve regional haze, primarily in the West. And while that is a nice thing to do and we all strive to do that, and we're working very hard in that regard, let's do it in balance with other objectives—economic objectives, removing fuel from the forest, and so forth.

So we need a balanced program, and that is indeed why the Commission, the Grand Canyon Visibility Transport Commission, was set up by the Congress to look at these various aspects and weigh them into a balanced program, which we did. EPA now chooses to ignore our recommendations.

Mr. SCHAFFER. Thank you, Madam Chairman.

Mrs. CHENOWETH. Thank you, Mr. Schaffer. That's very interesting.

And I'd like to ask Mr. Dennison, do you agree with Secretary Babbitt's assessment of the cost of prescribed fire versus the cost of mechanical treatment in the forest?

Mr. DENNISON. Thank you for asking that. I do have some background in that, having done some of that sort of removal after I retired. I don't know where those figures might have come from. The $20 to $30 per acre had to have been on a national average, and I think he mentioned a national average. That would include, then, a lot of acres where you didn't really have to do very much; you torched it and you let it burn, across grasslands and areas like Florida, possibly, but certainly not in California. So, I don't know where they could do that in California for that.

On the other end they noted, I believe, that it was $500 to $1,500 an acre for mechanical removal. I know that in California, under service contracts that the Forest Service have had, they've had as high as $275 per acre. Currently, those service contracts—and by service contracts I'm talking about the removing of the biomass without any other material, just trying to get that fire load down—those service contracts, the last I checked, were around $100 to $125 per acre, so, not near that figure.

In addition, though, Madam Chair, I think it's important to note that if we have contracts that are strictly contracts to do the end product job, what we call merchantable product sales, where you remove the small trees and you remove the biomass together, those are net income to the Federal Government. And so that gives them some extra money, then, to use on prescribed burns if they wish to later on. So I would question those figures, at least based on where I'm from.

Mrs. CHENOWETH. Thank you, Mr. Dennison. I just introduced a bill to that effect, the Stewardship Contract——

Mr. DENNISON. That is very much needed. I'm aware of that. We tried it once about 20 years ago, and we couldn't get enough cooperation from anybody, but I look forward to that being in effect.

Mrs. CHENOWETH. Good, good.

Mr. Peterson, I want to ask you, could you—what do you see as the biggest threat to the continued use of prescribed fire down there in Florida, or any place?

Mr. EARL PETERSON. Madam Chairman, we have a unique situation in Florida, as I mentioned. I think the biggest threat would be, of course, the concern for public health and the public perception of people who are not familiar with the history of prescribed fire, who might have moved into the area from outside of the area; so, I think those would be the biggest threats.

Prescribed fire, or controlled fire, as it used to be called, has a long history in Florida, generally accepted as a part of the landscape, as a part of the strategies there. But these two issues will impact its future.

Mrs. CHENOWETH. I see. Could you tell me why your office and the State in general felt it was necessary to develop and pass the Prescribed Fire Act in Florida?

Mr. EARL PETERSON. Yes. It was thought necessary because, No. 1, prescribed fire is very central, as I said earlier, to Florida—both to the ecology, the ecosystem. Many of our species are not only fire tolerant, they're fire dependent.

And then, of course, with the massive amount of people coming in who are not familiar with all of that, it was just thought it needed to be done because prescribed fire needs to go forward as a part of the management tool in Florida, and we needed to protect its proper use from civil liability, if done properly.

Mrs. CHENOWETH. Thank you.

Mr. Dennison, you noted there are data which show the amounts of fuel which should be removed prior to the use of prescribed fire. Could you give us an example of that?

Mr. DENNISON. Yes, as a matter of fact, one of the people who provided data—and it was also in Mr. Babbitt's testimony, his written testimony, at least—researcher Wallace Covington. He referred to that particular person, who does studies at North Arizona University, conducting studies there in order to determine means of restoring ponderosa pine forests through prescriptive fires. He reported in a recent study that in order to put a forest stand of trees back into a normality where they could use prescriptive fires, that he removed 5,500 board feet per acre, and as much as 5,800 tons per acre of unmerchantable slash and duff.

That unmerchantable slash and duff is something that in California we utilize for chips and co-generation in developing energy. So, those are the types of materials that we think ought to be removed. Now those are in certain stands. They wouldn't be the same volume everywhere, but that was an example.

In addition, in northern California, there's Wheelabrator Shasta Energy Company, who does have co-generation plants who do utilize those unmerchantable materials and do convert it to electricity. Their forester, Steve Jolly, has done studies and finds that they remove about 30 to 35 tons per acre prior to prescriptive burning. Putting that into something maybe we can grasp a little bit better, the large vans that the chips are in, that's about—oh, probably one to one-and-a-half truckloads per acre of material, a lot of material that has to be removed.

Mrs. CHENOWETH. How big is that co-generation facility down there in Shasta Power?

Mr. DENNISON. I think it's a 5-megawatt, and we have five of them in California and are ready to utilize some of those materials if we have them available to us. In addition, we have ethanol plants that now are looking to come into our area, as well, that can utilize some of this same material that can be removed prior to prescriptive burning.

Mrs. CHENOWETH. The pine needles and that type of thing?

Mr. DENNISON. Well, that gets in there inadvertently. They can take anything. Of course, what they do is they chip the material in the woods, blow it into a van, haul it in, then, into the facility, and then burn it at that plant.

Mrs. CHENOWETH. I wanted to ask Mr. Mutch, can the agencies significantly expand prescribed fire programs and still safeguard air quality, in your opinion?

Mr. MUTCH. It seems like a conflicting dilemma, the choice of the words you used, but my answer to that question based on reality is, yes, we can. And I base that on quite a few different examples of research that are going on around the West today.

For example, the Westar Group, which is a combination of 14 directors of the western States' air quality bureaus, are on record as saying that a large increase in prescribed fire can mitigate against future wildfire smoke. The same thing applies as my point three on the board here: pay now in a more balanced program, or pay a dear price later in wildfire smoke emissions.

For example, the wildfire called the Silver Fire in southwest Oregon in 1987, burned over a period of 58 days. Research has shown that it released 53 million pounds of respirable particulate—in other words, particulate matter less than 10 microns—into the atmosphere over a 58-day period.

The wildfire smoke, in my view, is the bad smoke. That doesn't mean that prescribed fire smoke is good smoke, but it is better smoke because we can time the period in which it is emitted; we can burn under certain wind directions and speeds to avoid smoke-sensitive areas. We operate under smoke management plans in our burning programs, and all of this prescribed burning, as you know, is done in concert with smoke management plans in the States to apply best-available control measures to minimize the amount of smoke and emissions into the air from prescribed burning.

Another study I will cite, Madam Chairman, is some work that's ongoing in Oregon between the Forest Service, the Oregon Department of Forestry, and DEQ in Oregon, that's showing, with data, that probably a great increase in prescribed fire over a period of years will ultimately reduce the total emissions from wildfires and prescribed fires in the future.

When you look at what's happening in the Blue Mountains of eastern Oregon and the Boise National Forest, we're seeing one wildland smoke episode after another from wildfires covering multi-State areas under conditions that are totally random and beyond our control.

Let me just conclude by saying I might take a different stance than what we heard from the EPA today under this premise that the wildfire smoke is the bad smoke. We might say that wildfire smoke should not fall under a natural events exemption, which we heard about. The wildfire smoke is not stringently regulated like prescribed fire smoke.

I would say that Federal agencies should be penalized for the wildfire smoke they put into the atmosphere, because that's the bad smoke, and there should be some leniency addressed to the prescribed fire question so that we can ultimately reduce total emissions by a more rounded program of prescribed fire.

Mrs. CHENOWETH. That's very interesting. Is there a logical way that one can tell whether a fire is caused by man or by an act of nature in time to impact other air emittents? I mean, sometimes, doesn't it take days and weeks to determine how a fire started, whether it was caused by man?

Mr. MUTCH. Take days and weeks in terms of fire cause?

Mrs. CHENOWETH. Yes.

Mr. MUTCH. We know pretty well from fire reporting where the fire starts and what's gone on in that area in terms of human activity and lightning storms. We know very carefully—you know, 95 percent or better, probably—whether fire is caused by lightning or by people.

Mrs. CHENOWETH. Very interesting, gentlemen. Your testimony has been very instructive, and I thank you so much for your patience today. We are putting together a very, very important and interesting record, and I thank you for your personal contribution, the contributions of your associations and companies that they have made by having you be willing to come to Washington and participate in this hearing.

Mr. Schaffer, do you have anything you would like to add?

Mr. SCHAFFER. Yes. You know, it's interesting. I don't represent Idaho, but I had a chance to fly over the Boise National Forest with the Forest Health Subcommittee, and it was remarkable how often some of the wildfires there stopped in this remarkable straight line. And it was not as a result of previous burning as much as it was a result of sound forest management and thinning, and so on.

So this concept you mention of good smoke versus bad smoke—you know, it's abundantly clear to me that in many areas of the country it's possible to prevent forest fires with no smoke by just applying the sound practices that forestry has taught us, and realizing that the taxpayers throughout the country have billions of

dollars worth of resources that can be utilized and harvested in a responsible way to maintain the integrity of the environment and improve critical habitats and prevent erosion in many cases, as we saw in the Boise National Forest, and so on.

I understand the necessity of controlled burns in some cases, but this notion that we hear today from some that controlled burning is always preferable to sound forest practices is a silly notion, I think, and, unfortunately, one that has seeped into the Department of the Interior and Department of Agriculture and is being excused in many ways by the EPA in a way to make the administration look more responsible on paper than they actually are in reality.

That's my comment. Thank you, Madam Chairman.

Mr. MUTCH. May I respond to that, briefly?

Mrs. CHENOWETH. Yes.

Mr. MUTCH. I would certainly say that you're exactly right, and I began my testimony by saying that the combination of mechanical, pre-commercial thinning, harvests, and all of those other tools must be done in concert with prescribed fire when necessary.

And I also would have to add to your comments that many of the vistas and landscapes that the public of this fine country enjoy are based on an evolution of plants and animals with periodic fire, and many of the functions of ecosystems are very carefully associated with the periodic occurrence of fire in these ecosystems, whether it's the germination of plants or the control of brown spot disease in longleaf pine, fire, for evolutionary periods of time, has interacted with these plants and animals.

So, you're exactly right. It's a program that's needed of balance and thought and judgment and wisdom. And we need mechanical thinning; we need harvests; we need the use of that material for economic benefit to the people of this country, at the same time that we afford those people some of the vistas that they enjoy in our wildlands that are there partly because of fire, not because we kept fire out.

Mrs. CHENOWETH. Thank you very much and—yes, Mr. Peterson?

Mr. EARL PETERSON. Madam Chairman, I would be remiss if I didn't say that I hope as we proceed through this process, which is very important because of all of the issues we heard here today, that we're not talking about just Federal land management issues. There's an enormous private sector out there who has some of the same concerns, some of the same needs.

There are other public land management agencies that are State and local who have these issues, and then everything from the fuels to the history to the strategies are different, so a one-size-fits-all, or a Federal blanket, shall we say, should not be one that we take for granted here. There are a lot of variables in this mix.

Mrs. CHENOWETH. I agree with you, and I thank you for that contribution.

I also want to say that the visionaries in this country, people like the individuals who built co-generation facilities when PURPA first came into being—the vision of being able to use the fuel load is a very good one and especially in this day when we're facing deregulation and throwing the production of energy out onto the free mar-

ket system, which I like, so long as we have an even start. I think those visionaries have got to be commended.

And it's my personal concern to see to it that those co-generation facilities always have the fuel available to them, and I just wish we had more of those facilities, because they can produce power from a renewable resource that helps clean up our forests and gives us the ability to have the right kind of prescribed fire conditions. So my hat is off to them.

I appreciate all of your testimony. As I said, it's very instructive. I have more questions for you, but I have been instructed that—your bacon is saved at this minute, because not only do we have a vote, but this room needs to be used by other people.

And so, we will be submitting our additional questions in writing. The record will remain open for 3 weeks, and if there are no other questions or comments this hearing is adjourned.

Mr. MUTCH. Thank you for inviting me.

[Whereupon, at 3:38 p.m., the Committee adjourned subject to the call of the Chair.]

[Additional material submitted for the record follows.]

STATEMENT OF HON. DAN GLICKMAN, SECRETARY, U.S. DEPARTMENT OF AGRICULTURE

Mr. Chairman and Members of the Committee:

I am pleased to appear today before this Committee to discuss the Administration's fire management policy with Secretary Babbitt and Administrator Browner. I want to highlight three issues in my testimony today and submit with Secretary Babbitt and Administrator Browner some further technical background for the record. First, I want to talk about how our resource conditions have changed because of past fire suppression policies. Then I want to discuss how we have changed our policies to address emerging problems, including the Forest Service's Fire 21 Agenda. And finally, I want to highlight some accomplishments of the Department of Agriculture in meeting changing demands.

The Federal Government has a long-standing tradition and record of fire management. 100 years ago, the creation of our National Forests was inspired by the need to protect forest resources from slash and burn logging that was decimating productive lands and threatening rural communities in the upper Midwest and far west. In 1911, after the Forest Service had begun serious fire suppression on Federal lands, the Weeks Act directed the Secretary of Agriculture to work cooperatively with the States to fight fires across ownerships. Today the Forest Service, in partnership with several Federal agencies, operates the most advanced, innovative, and effective fire fighting organization in the world.

Changing resource conditions

For 50 years we have had the technology to fight fires with incredible effectiveness. Our national policy, championed by Smokey Bear in one of our most successful public education programs, was to quickly and effectively put out fires. It is ironic, but we are now paying the price for our success.

Fire is a natural part of any terrestrial ecosystem in the country. In some areas such as southern California, wildfire came through on an average of every 10 years. In the ponderosa pine forests of the intermountain west, fires burned in 30 year cycles. In the east and the Pacific Northwest, some forests burned once in 100 years. In every case, fire was a regular part of the ecological process. While we have known that fire was a natural occurrence in wildlands, we recently began to understand that it is necessary.

Today, the legacy of seven decades of fire suppression is a changed landscape. Forests where young seedlings were regularly thinned out by periodic fire are now thick with small diameter trees that outstrip the sites' moisture supplies and soil nutrients. These dog-hair thickets are especially subject to drought, disease. and ultimately intense wildfires that wipe out nearly the entire stand. Other forests where fire resistant trees used to be the dominant species are not crowded and sometimes replaced by trees not native to the area. The result is changed habitat undesirable species mixes, and increased susceptibility to fire. Even rangelands show the evidence of fire suppression with exotic plants, over abundance of sagebrush, and the encroachment of shrubs and unpalatable plants. In all cases there is simply an incredible accumulation of fuel in the form of needles and organic material on the forest floor, woody shrubs, overstocked stands of small diameter trees, and deadfall trees lying on the ground that exceed the levels necessary for soil formation native habitat, and forage.

These conditions have led to a serious change in wildland fire activity. Since the 1920's wildfire has typically claimed 400,000 to 500,000 acres of national forests each year. From 1920 to 1987—a period of nearly 70 years—fire never burned more than one million acres per year. However, in the past 10 years, we have had four years during which more than one million acres have burned.

These unnatural, fire-prone, forest conditions exist on 39 million acres (20 percent) of our national forest system. This fact, combined with the tragic loss of 34 skilled firefighters in 1994, is why Secretary Babbitt and I have taken such an aggressive role in changing fire policy in the Administration. Contrary to some claims of critics, our changed policy is *not*, I repeat, *not* to simply put a match to the forests. Our policy changes involve mechanical forest treatment, budget structure changes, new planning priorities, personnel training, new research, carefully planned prescribed burns that continue to include air quality considerations, and dozens of other initiatives to meet this challenge.

To meet the changing needs for the 21st Century, the Forest Service has integrated the concepts of the Federal Fire Policy Review into a program we call Fire 21, which realigns and emphasizes our priorities. The four commitments of the Fire 21 Agenda are: 1) Putting firefighter safety and public safety as the highest goal; 2) Supporting the role of fire in restoring and sustaining healthy ecosystems; 3)

Supporting the integration of fire management into land management planning; and 4) Improving fire and aviation accountability within the Forest Service.

One of the most important steps necessary to returning fire to the landscape after 70 years of fire suppression includes removing small diameter trees which can be tightly packed, susceptible to fire, and serve as fuel ladders that allow low intensity ground fires to burn up into the treetops. Old growth trees that have survived dozens of fires over several centuries are threatened by these intensely hot crown fires. At lease half of the 39 million acres that are potentially subject to damaging wildfire need some kind of mechanical fuels treatment before fire is reintroduced. The Senate Interior Appropriations Report for fiscal year 1998 includes $50 million for this type of fuels management, an increase from $29 million in 1997.

Another important step is providing the resources to implement prescribed burns in the very narrow windows of time when weather, moisture levels, treatment objectives, air quality, and other factors converge to allow a carefully controlled burn across a discreet area. In 1996, the Forest Service treated 532,000 acres. In 1997, we have burned nearly one million acres. By 2005 we hope to treat 3.5 million acres annually, so that by 2015 we will have addressed nearly all of the 39 million acres that need fuel management and fire reintroduction. The fiscal year 1998 Senate Interior Appropriations Report moves hazardous fuels management funding out of the fire preparedness function into a fire management operations account to ensure that it is available to supervisors who are managing fire through prescribed burns and fuels treatment. This will increase our ability to restore ecosystems with fire management techniques.

There is another changing condition which has nothing to do with out past fire management policies, but has a very significant impact on future fire policies—the growing wildland/urban interface. As more people recognize the beauty and value of public land, more people are locating homes in and around it. Many of these people choose to live in wooded environments with trees that grow right beside their houses. This has become a very significant challenge for the Forest Service; how to balance the risk of suppressing wildlife with the risk of reintroducing and managing fire. We do not have all the answers to these questions, but we are working very closely with our partners, especially the state foresters, to develop appropriate balance between federal responsibilities and private responsibilities for total fire management across mixed ownerships. We have developed an education program with local firefighters using radio announcements and other venues to teach homeowners the importance of managing fuels such as shrubs and trees next to their homes.

Through Fire 21, the Forest Service is changing the fundamental skills and training of federal fire fighters. Instead of focusing exclusively on fire suppression, the new fire management workforce will have training that allows them to serve as a resource to forest supervisors who need to reintroduce fire to the ecosystem. Comprehensive fire management will include fuels evaluations, collaboration across ownerships, land management planning, prescribed fire implementation, and fire and vegetation monitoring. Our people will be trained and equipped to fight fires as effectively as ever, but their skills will reflect the changing demands of a comprehensive fire management program.

We are also making progress in addressing one of the most controversial aspects of an aggressive program of prescribed burning—smoke management. Unlike some, we do not see air quality standards as an obstacle to the use of prescribed fire. Rather, these regulations recognize the importance of protecting air quality in carrying out management activities. We are working with the Environmental Protection Agency and State air quality regulatory agencies to develop practical policies to mitigate and manage visibility and health impairment from smoke emissions. We are encouraged that other governmental entities, such as the Grand Canyon Visibility Transport Commission, recognize that air quality is affected by smoke not only from prescribed fires but also from wildfires and that a strong prescribed fire program can have much less impact on air quality in the long run.

Through Fire 21, the Forest Service is also changing the fundamental skills and training of federal firefighters. Instead of focusing exclusively on fire suppression, the new fire management workforce will have training that allows them to serve as a resource to forest supervisors who need to reintroduce fire to the ecosystem. A total fire management program will include fuel evaluation and treatment, collaboration across ownerships, land management planning, prescribed fire implementation, and fire and vegetation monitoring. Our people will be trained and equipped to fight fires as effectively as ever but their skills will reflect the changing demands of a comprehensive fire management program.

Accomplishments

Finally, let me explain a few of our accomplishments in the overall fire management area.

The outstanding track record of fire suppression will continue. The federal fire fighting agencies have consistently suppressed 98 percent of all wildfires during initial attack. The remaining 2 percent of the fires account for most of the loss of life and total acreage burned. However, even as we shift to broaden our management objective, we intend to maintain our capability to stop most fires before they threaten people or property.

Our cooperation with the states will also continue. Through the USDA cooperative fire program, we have loaned state and local governments more than $800 million dollars in surplus federal property for use in fire suppression during our long-standing partnership. With the support of Congress, USDA provides approximately $17 million in cost-share grants to strengthen the state programs and an additional $2 million, through the states, to help train and equip volunteer firefighters in rural towns across the United States.

The Forest Service is a world leader in fire behavior and fire management research. We have extensive expertise and research underway on the effects of fire on vegetation and wildlife, smoke management, impacts of harvesting on fire risks, and opportunities to create markets for small diameter trees—especially in California and the Southwest. While there is almost always a market for the mature large diameter trees, we need to make sure there is a capacity, and hopefully market demand, to facilitate the removal of smaller diameter trees. We cannot afford to sell off traditional forest products and leave behind trees that have traditionally been "non-merchantable" because this will not address our fire management needs and will leave the forest in worse condition.

Finally, we have working and will continue to work with the Environmental Protection Agency to address the complex questions of airshed management in fire dependent ecosystems. We are on a work group with the Department of Interior and state land managers to develop recommendations for an EPA policy on wildland fire emissions. The Forest Service is committed to incorporating public health and environmental quality considerations into its fire management plans. Air quality criteria will continue to be incorporated in fire prescription and smoke management plans. USDA's partnership with EPA is a strong one—across many program areas—and we look forward to its further growth.

Summary

I am very excited about the new directions in fire management. We have recognize the trend of ecological changes and dramatically changed direction. Our changes are keeping firefighters safer, restoring the environment, enhancing wildlife habitat, protecting streams and forests from intense and damaging fires, and managing air quality. The Forest Service and its federal partners continue to be leaders in developing a total fire management strategy that protects both people and the environment.

STATEMENT OF BRUCE BABBITT
SECRETARY OF THE DEPARTMENT OF THE INTERIOR
BEFORE THE COMMITTEE ON RESOURCES
UNITED STATES HOUSE OF REPRESENTATIVES
ON FIRE AS A MANAGEMENT TOOL

SEPTEMBER 30, 1997

Mr. Chairman and members of the Committee, it is a pleasure for me to appear before the Committee today to discuss the Department of the Interior's wildland fire management program. My remarks and my written statement will be primarily focussed on the fuels management aspect of the program, particularly the use of fire to restore and maintain healthy, sustainable natural systems and to reduce the risk of catastrophic fire. I do want to remind the Committee, however, that the preparedness and suppression aspects of the Department's fire program remain essential for protecting public safety and unacceptable loss of natural resources. Both the preparedness/suppression and the fuels management portions of the Department's program are closely coordinated with the USDA-Forest Service.

Wildland Fire Management Policy

As a result of several severe fire seasons culminating with the tragic 1994 series of fatalities, then-Secretary of Agriculture Mike Espy and I convened a comprehensive review of federal wildland fire policies to ensure that we had common and consistent policies in both Departments and to ensure that those policies are based on good science and resource management practice. The result, the Federal Wildland Fire Management Policy and Program Review Final Report, was accepted by Secretary Glickman and me in 1995 and established joint fire management policy for both of our Departments. I am pleased that Administrator Browner, along with James Lee Witt, the Director of the Federal Emergency Management Agency, joined in their support of the policy.

Our joint policy is based on several established guiding principles, including:

- Firefighter and public safety is the first priority in every fire management activity;
- The role of fire as an essential ecological process and natural change agent will be incorporated into the planning process;
- Fire management plans, programs, and activities support land and resource management plans and their implementation;
- Fire management programs and activities are based on the best available science;
- Fire management plans and activities incorporate public health and environmental quality considerations.

The set of policies contain a number of key elements, including:

- Protection of human life is reaffirmed as the first priority in wildland fire management, with protection of property and natural/cultural resources being considered jointly the second priority, with protection decisions based on values to be protected and other considerations.
- The role of wildland fire as an essential ecological process and natural change agent must be reintroduced into the ecosystem. This will be accomplished across agency boundaries, using the best available science.
- Where wildland fire cannot be safely reintroduced because of hazardous fuel build-ups, some form of pretreatment must be considered, particularly in wildland/urban interface areas.
- Wildland fire decisions must be closely linked to resource management goals and objectives and must have the flexibility to select from a full array of appropriate management actions on an unplanned ignition. The options will include full and immediate suppression where there are significant values to be protected to allowing fires to burn where they can fulfill their natural ecological role without risk to human safety, property or other values to be protected.
- Wildland fire management requires participation of all partners, and that all partners have compatible programs and activities.
- The Federal agencies are partners in managing wildland fire in the urban interface, but the primary responsibility for structural protection rests with tribal, state and local governments.
- Federal agencies must place more emphasis on educating internal and external audiences about how and why we use and manage wildland fire.
- Good fire management requires a sound scientific knowledge of fire ecology, good technical support from common information systems, and cooperative efforts to provide the technical tools for analyzing fire management problems.

I am pleased that since Secretary Glickman and I announced these policies over two years ago we have made significant progress in implementing them on the ground. Today I would like to report on why we feel these policies are critical for improving the quality of our forests and ranges and how we are realizing our goals of joint federal policies.

Terminology

One of the essential tasks for strengthening our common policies and their implementation is to agree upon terminology. In recent months the National Wildfire Coordinating Group has agreed upon some common terms. In order to minimize confusion today, and in future discussions, I want to outline some of the key terms and their definitions:

- **Wildland Fire Program** - refers to the full range of activities and functions necessary for planning, preparedness, emergency suppression operations, emergency rehabilitation, and prescribed fire operations, including non-activity fuels management to reduce risks to public safety and to restore and sustain ecosystem health;
- **Wildland Fire** - any non-structure fire, other than prescribed fire, that occurs in the wildland;

- **Prescription** - measurable criteria which guide selection of appropriate management response and actions. Prescription criteria include safety, economic, public health, environmental, geographic, administrative, social, or legal considerations;
- **Appropriate Management Response** - specific actions taken in response to a wildland fire to implement protection and fire use objectives;
- **Prescribed Fire** - Any fire ignited by management actions to meet specific objectives; a written, approved prescribed fire plan must exist;
- **Wildfire** - An unwanted wildland fire; this term will be primarily used in conjunction with fire prevention activities and is not a separate type of fire for management purposes.
- **Fuels Management** - use of fire, mechanical removal, or a combination of techniques to reduce fuels in order to protect firefighter or public safety or to restore or maintain healthy, sustainable natural systems.

Fuels Management and Scope of the Problem

The accumulation of dead and live fuels to unnatural and hazardous levels is one of the greatest challenges facing wildland fire management today. One hundred years of fire suppression have contributed to this growing problem. By successfully suppressing up to 98 percent of wildland fires while they are small, we have allowed dead fuels to accumulate on the forest floor, chaparral fields to become dense and filled with dead branches, and young trees to invade forests in overabundance. The dense invasion of young trees in Western ponderosa pine forests provides fuel ladders that allow fires to reach into the canopy of forests that were almost immune to crown fires in pre-European settlement times. This unhealthy situation in our forest, range and chaparral ecosystems is producing the large, catastrophic fires that have become all too familiar on the news. The only way to reduce the loss of life and property from these fires is to attack the root of the problem - reduce fuels to more manageable levels and restore wildland fire to its natural ecological role.

Fire is a natural force in the development of forest and range ecosystems. It has played an important role, and attempts to exclude it have frequently altered the vegetation to a less favorable condition. Fires ignited by people or through natural causes have exerted a significant influence on numerous ecosystem functions. Fire recycles nutrients, reduces biomass, influences insects and disease populations, and is the principal change agent affecting vegetative structure and density, composition, and biological diversity. As humans alter fire frequency and intensity, many plant and animal communities are experiencing a loss of species diversity, site degradation, and increase in the size and severity of wildland fires. These changes are adversely affecting grazing, watersheds, forest product utilization and recreation.

In addition, grasslands are becoming stagnant and invaded by shrubs and weeds. Forests are becoming overstocked with trees that have no market value, insect and disease infestations are increasing, and in many cases excessive fuel accumulations are occurring. There is inadequate reproduction of desirable shade-intolerant tree species which require openings created by periodic fires. It is impossible to completely exclude fire from the landscape. Therefore, we must use fire judiciously so we can work with natural systems more economically and rationally, rather than

trying to force the system into unstable patterns.

It will take decades to fully reverse hazardous fuel accumulations and unnatural ecosystem changes through the use of prescribed fire. Many areas will require 3 to 5 treatments using both mechanical activities and prescribed fire before fuels and ecosystem components stabilize within the natural range of variability. Managers must balance a suppression program with a program of prescribed fire applied on a landscape scale if we are to meet stewardship responsibilities. To accomplish this will require consistent commitment to long term funding and reasonable expectations of what can be accomplished on a year to year basis.

It is estimated that 55 million acres of lands managed by the Department of the Interior require periodic treatment by fire. This equates to nearly 2 million acres per year needing treatment at an average $25-30 per acre in current dollars. The best case scenario for an ambitious expansion of the fuels treatment program will get us only half way to this goal within the next four years. Clearly, reducing catastrophic fire occurrence and restoring fire to its proper role in ecosystem health will require a dedicated, long term commitment of resources and the ability to overcome many of the political, regulatory, technological and policy constraints of the past.

Interagency Planning and Cooperation

Because wildland fire respects no "man made" boundaries, uniform Federal policies and programs are essential. The Federal Wildland Fire Management Policy ensures that the fire management programs of the Departments of Agriculture and Interior are uniform, cooperative and cohesive. While unique agency missions may result in minor operational differences, the policy provides an "umbrella" to ensure effective and efficient operations across administrative boundaries, and improves our capabilities to address the landscape-scale problems posed by current wildland fire conditions. Therefore, the agencies are working to ensure that fire is fully addressed in the formulation of their land use plans both within discrete agency lands and across interagency boundaries. The use of fire as a tool will never be risk free. To reduce risk, however, all management activities will require that a Fire Management Plan be developed prior to the use of fire to achieve on-the-ground objectives consistent with safety and values to be protected.

Moving Beyond Small Treatment Blocks

The strategy for implementing this fuels management initiative requires developing more landscape scale treatments across administrative boundaries. In the past, most prescribed burning focused on treating small, fragmented blocks of land within individual jurisdictions and fuels generated by timber harvesting, grazing, wildlife enhancement and other land management activities. Fragmented small-scale treatments never allowed interagency efforts to reach the "critical mass" necessary to reverse the overall increase in hazardous fuels across the landscape. Treatments must be linked in time and space to provide effective barriers to the spread of large, intense fires. In other words, units must be treated often enough to continue reducing fuels back to the desired state, and they must be connected in a systematic way so that they will reduce the opportunities for fires to grow in intensity and spread across large areas.

Treatment priorities will focus on the wildland/urban interface and the reduction of risks to life and property. In many instances these treatments will be accomplished by mechanical means to eliminate risks from the use of prescribed fire in urban settings. Priority will also be given to the use of fire to restore and maintain healthy forests, grasslands and wetlands.

Constraints on Policy Implementation

Air Quality and Visibility Impairment

The Department of the Interior is committed to the goal of clean air and improved visibility. The recently promulgated National Ambient Air Quality Standards will be good for the public lands and resources for which the Interior Department has stewardship responsibilities. I support the recommendations of the Grand Canyon Visibility Transport Commission to protect and enhance the visual qualities of the Colorado Plateau. At my request a joint task force of Interior and Forest Service staff are developing recommendations and a plan to implement the fire-related recommendations of the Commission.

To date, prescribed fires have not been a significant cause of non-attainment of air quality standards. In many areas our land managers have been working with state and local regulatory agencies to minimize emissions from prescribed fires. We recognize that the amount of burning that will take place in the next several years to begin restoration of healthy, sustainable ecosystem and to reduce the risk of catastrophic fire, could have significant impact on air quality in some areas. Representatives from the Department of the Interior are currently working with those from the Forest Service, the Department of Defense, the EPA, and the states to develop a national policy that will accommodate both increased burning and meet the National Ambient Air Quality Standards.

Within the land management community there are steps that we can take to minimize adverse impacts on air quality. Through improved land and resource management planning we can better document and articulate where fire is a necessary management action and can consider non-fire alternatives in order to reduce smoke emissions. Smoke management plans are often very successful in reducing emissions through control features such as:

- burning in weather patterns which disperse smoke away from sensitive areas;
- reducing the amount of available fuel prior to ignition;
- limiting the tons of fuel which can be burned in a given time period within a geographic area; and
- designing site specific burn prescriptions which limit the types of fuels consumed, thereby reducing total ignition time and total smoke emissions.

In the long term, as prescribed fire treatments enter the maintenance phase through repeated burning, emissions will be significantly reduced from those experienced at the start of the program since the amount of fuel (both on the ground and standing) will be enormously reduced.

In nearly every area of the country, forests and ranges will burn as a result of natural

(lightning) ignitions or, in some cases, through negligence of human activities. Thus, an important consideration in examining the relationship between air quality and fire is the circumstances under which emissions from fire take place. In many instances smoke emissions will have less impact if fires take place under controlled circumstances (prescribed fire) rather than in times, places, and conditions beyond our control (wildland fire). Recent interagency environmental studies conclude that, in general, wildland fire impacts on air quality may be significantly greater than emissions from prescribed burning. Although an aggressive fuels management program may increase the amount of smoke from prescribed burning in the short-term, overall emissions from wildland fires will be reduced over the long-term as fewer large, intense fires occur and the overall amount of forest fuels is reduced. Mechanical forest thinning in lieu of prescribed burning also can contribute to reduced emissions in some areas, although it has limitations as discussed below.

It is also important to note that wildland fire emissions are artificially low due to aggressive wildland fire suppression over the past 100 years. The regulation of fuel loading by naturally occurring fire has effectively been reduced, resulting in the unanticipated consequences of poorly functioning ecosystems and costly and destructive wildland fires. A reconditioning or catch-up period will be required to return many fire dependent ecosystems to a properly functioning status through management intervention. This period will undoubtedly increase emissions beyond current levels. The critical task is to manage these emissions to reduce impacts as much as possible. A consistent program of cyclical prescribed burning will help establish a predictable and manageable smoke emissions load from year to year. In contrast, the current evolution toward a cycle of widespread, intense wildland fires in some years and few fires of any type in other years leads to a boom and bust cycle in smoke emissions with little capability to manage impacts. Our fuels reduction and ecosystem prescribed burning initiative will eventually restore wildland fire smoke emissions to more natural, pre-settlement levels.

Successful cooperation between Federal land managers and air quality regulators is not only essential, it is already happening, as illustrated by the following two examples. First, Sequoia and Kings Canyon National Parks, along with the BLM, USFS, Fish and Wildlife Service, California Department of Forestry, and California State Parks, have signed a memorandum of understanding with the San Joaquin Valley Unified Air Pollution Control District to jointly manage smoke from prescribed burns. This smoke management plan recognizes the smoke impact reduction features of the park's burn program as satisfying best available control technology requirements. This agreement allows a substantial increase in prescribed burn acreage to be achieved by the park even as the District continues its program to improve air quality overall. Second, the state of Arizona, Federal land managing agencies, and other burners in Arizona have established a process for scheduling prescribed burns and controlling emissions to minimize impacts on surrounding communities, providing a mechanism to restrict or even postpone burns in order to protect surrounding communities.

Aversion to Risk Taking and Public Acceptance

The reintroduction of fire to the landscape is one of the highest risk activities practiced by land management agencies. The first and foremost of our guiding principles is that firefighter and

public safety is the highest priority in every fire management activity. If this consideration cannot be met, the use of fire as a management tool will not be considered. However, this does not mean that the use of fire must be totally risk free. It does mean that risks and uncertainties relating to prescribed fire management activities need to be understood, analyzed, communicated, and mitigated to the extent practical.

Some managers are unwilling to accept the potential risks of fire use. Through appropriate training and experience these fears can be reduced. The severe fire seasons in 1994 and 1996, proved that a no-action approach carries an enormous risk to human safety and property. An aggressive fuels management program is the only way to address these risks. Accepting risks of large scale fuels management programs will require educating the public and land managers on the impacts of the status quo action versus the benefits of using fire to improve forest and rangeland health for the use by present and future generations.

Fire Use Prescription Windows

Prescribed burning is significantly controlled by variances in weather conditions. Limiting weather factors include wind speed, temperature, and relative humidity. Also, for any given area, favorable burning conditions are limited to certain periods of the year. In very wet and dry years the amount of prescribed burning is severely limited. Burning only under predefined weather and fuel conditions ensures that the application of fire meets resource management objects without excessive risk for the burn to escape. To maximize achievement of ecological as well as hazardous fuel reduction goals, prescribed fires may have to be lit under weather conditions normally associated with the fire season. As both prescribed fire and wildland fire suppression require the use of similar equipment and personnel, there occasionally may be conflict with suppression activities. However, the use of prescribed fire is expected to result in a long term decrease in fire suppression funding needs.

All aspects of fire and smoke management require timely, site specific and state-of-the-art weather forecasting. This service is available from the National Weather Service with the exception of non-Federal non-wildfire land management requirements. Its specialized fire weather forecasters have provided spot forecasts and long-range predictions for large suppression efforts as well as for prescribed burning operations. As the use of prescribed burning expands, the need for this type of forecasting support will grow on Federal and other lands where fire is being used in resource management. As the need for meteorological support grows, we need to determine how to best obtain that support, including use of the National Weather Service, private contractors, and in-house capabilities.

The Role of Timber Harvesting, Thinning and Mechanical Fuels Removal

Many plant communities evolved with recurring fire and therefore are dependent on recurring fire for establishment and continued growth. This effect cannot be duplicated by mechanical manipulation of fuels and leaves prescribed fire or a combination of prescribed fire and mechanical treatments as the tool of choice for ecosystem maintenance.

Commercial timber harvest is often discussed as one silvicultural alternative to prescribed fire. There are areas where this tool is practical. For example, the Mescalero Reservation in New Mexico recently treated 27,000 acres in a multi-product forest health project. This project included salvage of insect-killed trees, commercial thinning, and on-site chipping of smaller trees for paper product manufacturing. An associated benefit of this operation was the reduction of fuel loadings, allowing reintroduction of fire and the long-term reduction in suppression costs. However, environmental factors and economics are often limiting factors to its use. Although some trees needing removal have an economic value, it is typically not these trees that cause the catastrophic fire hazard. Rather, the hazard comes from the nonmerchantable trees which have resulted from a long history of fire exclusion. These dense, nonmerchantable stands now dominate a large percentage of our western forests and reduce the potential to grow merchantable trees. Therefore, while silvicultural tools such as thinning can be economic and viable alternatives, their use can only be assessed at a site specific rather than a landscape level. Silvicultural treatment alone cannot restore ecosystem health on a scale identified as needing treatment.

Mechanical fuels removal can be a preferred alternative in areas where the risks of prescribed fires are currently too high. Mechanical fuels removal can also be used for site preparation prior to applying fire when it is necessary to secure boundary areas or to manage emissions by reducing fuel loadings prior to ignition of fires.

Prescribed fire is by far the least expensive method of treating hazard fuels. The cost of using prescribed fire can vary widely between rangeland and forest burning, with additional variation occurring based on existing fuel conditions. Average national costs run about $20-$30 per acre, while mechanical fuel reduction or multiple treatments in forest types can cost $500-$1,500 per acre.

The Department has several experimental treatment projects which will be used to assess the relative cost and benefits of broad-scale tree removal prescribed burning.

On Federal lands in Northern Arizona, Northern Arizona University is attempting to restore natural fuel loadings and stand structure in Ponderosa pine forests by using a combination of commercial thinning followed by prescribed fire. This forest restoration system generates income through the sale of timber which can be used to partially pay for the treatments, and which can be beneficial to the local economy. Similar approaches are being tried in other parts of the country. Assessments are needed to determine whether these techniques are applicable at the landscape scale needed to address the hazard fuels problem found throughout the west.

The Mineral King Risk Reduction Project in Sequoia National Park, California is designed to assess the feasibility of using prescribed fire on a landscape scale to restore a natural ecological balance without mechanical pre-treatment. The area to be treated encompasses 50,000 acres with a high degree of risk to private developments, public safety, and natural resources from catastrophic fire. Extensive mechanical fuel removal is infeasible because of the steep rugged terrain, poor road access, and the need to preserve wilderness values. The focus of this

experiment is to determine whether the broad scale application of fire in an area from which fire has been largely excluded for over 120 years can be accomplished with minimal risk of fire escape and acceptable smoke impacts on local communities.

In both of these examples the relative costs and benefits are being assessed through extensive research and monitoring programs.

Fire Sciences Initiative

The proposed 1998 wildland fire appropriation includes an initiative to greatly expand the Department's fire sciences program in conjunction with the U.S. Forest Service. Up to a combined total of $8 million per year will be used to establish a sound scientific basis for the fuels management program in the two departments.

The House Appropriations Committee Report specifically expressed the concern that both Interior and the Forest Service lack adequate information about the fuels management situation and workload, including information about fuel loads, risk, flammability potential, fire regimes, location of hazards, and priorities for treatment. It directed that the principal purposes of the fire sciences initiative should be to:

- establish and implement a comprehensive approach for fuels mapping and inventory that includes the location and condition of fuels, the appropriate treatment frequency, and priorities for treatment;
- evaluate various treatment techniques for cost effectiveness, ecological consequences and air quality impacts;
- develop long-range schedules that describe the sequencing of treatments, such as commercial or pre-commercial thinning and prescribed burning;
- establish and implement protocols for monitoring and evaluating fuels treatments techniques in a manner that measures performance over time and determines whether the treatments are effective in meeting program goals and objectives.

In particular these funds will be used to provide enhanced technical support for evaluating and treating fuels across agency boundaries. Remote sensing imagery and computer modeling will be used to assist fuels managers in identifying priority areas for fuels treatment. Accurate mapping and modeling of fire behavior will allow hazard fuel treatments to expand rapidly while at the same time minimizing the risks of fire escape.

The two Departments are preparing a plan for Congress to be presented January 1, 1998, which will outline the process for implementing the fire sciences initiative. It will include an assessment of the current state of knowledge about fuels conditions, a coordinated approach to improved fuels mapping and inventory, an approach for program monitoring and evaluation, and an approach for setting treatment priorities. It also will evaluate the relative effectiveness of prescribed burning and non-fire treatments in different types of hazard areas.

Budgetary Concerns and the 1998 Budget Initiative

Although 1997 has been a relatively light season, the long-term problem of catastrophic fires has not decreased. Recent trends indicate that 2 out of 3 years result in moderate to extreme fire years. It is imperative that we take advantage of less severe fire years, like 1997, to make significant progress toward reducing threats to public and firefighter safety, and to resources from the next severe fire season in the future. In my preceding remarks, I have outlined our strategy for achieving this goal.

The 1997 fire season to date compares to the two most recent severe years as follows:

	1997	1996	1994
Number of Fires (all USA)	52,366	95,579	79,107
Acres Burned (all USA)	2,733,794	6,017,163	4,073,579
Organized 20-person Crews Mobilized	87	1,345	1,632
DOI Suppression Costs	$67,174,000	$196,612,000	$183,187,000

Years with minimal fire suppression activity, like 1997, present especially good opportunities to engage in prescribed fire and fuels management activities. However, our fire management budget has not had the flexibility to allow emphasis to shift easily. Our 1998 fire management budget request, developed jointly by Secretary Glickman and me, is designed to ensure that there is flexibility and opportunity to undertake fuels treatment activities.

The fire management appropriation consists of two activities: Wildland Fire Preparedness and Wildland Fire Operations. Through 1997, the Preparedness program allowed us to maintain our suppression preparedness resources at near optimal levels so that we will be ready to respond to the workload in an average fire season as well as funding fuels management activities. The Operations activity focused entirely on suppression of fires and a small emergency rehabilitation program. Under our 1998 Wildland Fire Management Appropriation, fuels management activities will be funded in the Wildland Fire Operations activity rather than Preparedness. The Wildland Fire Operations activity provides a more flexible source of funds to implement the full array of operational fire activities including suppression, emergency rehabilitation, and fuels management projects -- all of which have unpredictable and unplanned characteristics that are more appropriately funded in this activity. This new approach will provide funding to support an expanded prescribed fire and mechanical treatment program.

The Interior bureaus are developing plans to utilize appropriate management tools, including

silvicultural treatments and the use of fire, to reduce fuels to a more natural condition. As part of this program, the bureaus have projected an increase in acres treated from 298,000 acres in 1996 to 1,100,000 acres in 2001. This represents an approximate 25% annual increase over the next five years.

Conclusion

In conclusion, the new policy establishes a balance between strong suppression capability and fire use for ecosystem health and fuels management. This cultural shift will require re-education within the fire community as well as the public. Until this re-education is completed, there will undoubtedly be misunderstandings between local administrative units, the press and the public over the direction of wildland fire management. Full implementation of the new policy and seamless interpretation of policy initiatives will be an evolutionary process. 1998 will be a transition year during which these initiatives will begin to bear fruit. It is critical that the bureaus do not sacrifice or reduce suppression response capabilities while focusing on the long term problem of fuels management. The risk of catastrophic fire will remain high for many years until fuel loadings are reduced to acceptable levels. The threat of fire will always be with us, and in fact will expand because of the increasing population and increasing encroachment of human development into wildlands. However, this program provides an effective means to manage this threat. At the same time we must ensure that we do everything that we can to minimize the public health and welfare effects of increased prescribed fire activity. We will be using non-fire treatments whenever and wherever possible and employing smoke management techniques to minimize emissions. In the long run, increasing our investments in fuels management and suppression capability will reduce the total cost of fire management and resource losses along with the risks to life and property, as well as minimizing adverse impacts on air quality.

This concludes my prepared statement. I would be happy to answer any questions the Committee may have.

TESTIMONY OF CAROL M. BROWNER
ADMINISTRATOR
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
COMMITTEE ON RESOURCES
U. S. HOUSE OF REPRESENTATIVES

September 30, 1997

Mr. Chairman, Members of the Committee, thank you for inviting me to discuss issues surrounding fire management and the Environmental Protection Agency's (EPA's) revisions to the national ambient air quality standards for ground-level ozone and particulate matter.

As you know, the Clean Air Act directs EPA to set national standards for certain air pollutants to protect public health and the environment. For each of these pollutants, Congress directed EPA to set what are known as "primary" standards to protect public health without consideration of cost. Under the Act, Congress directs EPA to review these standards every five years to determine whether the latest scientific research indicates a need to revise the standards.

In July of this year, I set new standards for ozone and particulate matter (PM) that will be a major step forward in public health and welfare protection. Each year, these updated standards have the potential to prevent as many as 15,000 premature deaths, and hundreds of thousands of cases of significantly decreased lung function in children and cases of aggravated asthma.

The new ozone and particulate matter standards are based on an extensive scientific and public review process. Congress directs EPA to consult with an

independent scientific advisory board, the Clean Air Scientific Advisory Committee (CASAC). In conducting these reviews, EPA analyzed thousands of peer-reviewed scientific studies that had been published in well-respected scientific journals. These studies were then synthesized, and along with a recommendation on whether the existing standards were adequately protective, presented to CASAC. After three-and-a-half years of work, including 11 meetings totaling more than 125 hours of public discussion, and based on 250 of the most relevant studies, the CASAC panel concluded that EPA's air quality standards for ozone and particulate matter should be revised. CASAC unanimously supported changing the ozone standards from a 1-hour averaging period to an 8-hour averaging period to reflect increasing concern over prolonged exposure to ozone, particularly in children. CASAC also supported adding a fine particle standard. Fine particles are inhaled more deeply into the lungs and are more strongly associated with serious health effects and visibility impairment than larger particles.

Based on scientific evidence reviewed by EPA and CASAC, EPA proposed revised standards and conducted an extensive public comment process, receiving approximately 57,000 comments at public hearings across the country and through written, telephone and E-mail message communications.

After carefully considering the results of this extensive process, and with the support of the President, I issued a final rule updating the ozone standard from 0.12 parts per million (ppm) of ozone measured over one hour to a standard of 0.08 ppm measured over eight hours, with the three-year average of the annual fourth highest

concentrations determining whether an area is out of compliance. The new standard will reduce "flip-flopping" in and out of attainment by changing from an "expected exceedance" to a "concentration-based" form.

For particulate matter, EPA is adding new standards for particles smaller than 2.5 micrometers in diameter (known as "PM-2.5" or fine particles). The fine particle standard will have two components: an annual standard, set at 15 micrograms per cubic meter and a 24-hour standard, set at 65 micrograms per cubic meter. EPA has also changed the form of the current 24-hour PM-10 standard; this will provide some additional stability and flexibility to states in meeting that standard.

Our PM-2.5 rule requires three years of federal reference method air quality monitoring data for determining whether an area is "attainment" or "nonattainment" with the new PM-2.5 standards. To obtain these data, a comprehensive network of monitors must be put in place. EPA has agreed to cover the cost of establishing that network through grants to states. In view of the time needed to establish the network and collect data, EPA expects that three years of PM-2.5 monitoring data will not be available until between 2001 and 2004, depending on when monitors are installed in a given locality. Therefore, actual designations of attainment or nonattainment will not take place until between 2002 and 2005. If an area is designated nonattainment, a state will have up to three years to develop a plan to control the problem. Areas will have ample time to review and analyze the nature of their particulate matter problem and to develop technically sound and cost-effective control strategies. In addition, states that are participating in regional reduction programs to curb acid rain will not

face new local requirements if full implementation of the acid rain program would enable attainment of the PM-2.5 standard.

As required by the Clean Air Act, EPA intends to complete its next periodic review of the particulate matter national ambient air quality standards, including review by the Clean Air Scientific Advisory Committee, within five years of issuing these new standards. By July 2002, EPA will have determined, based on data available from its review, whether to revise or maintain the standards. This determination therefore will be made before any areas have been designated nonattainment under the PM-2.5 standards and before any new controls related to the PM-2.5 standards are implemented.

Effect on Forest Health of the Revised Air Standards for Ground-level Ozone

Ozone causes damage to vegetation by interfering with the ability of plants to produce and store food, so that growth, reproduction and overall plant health are compromised. Plants and trees weakened in this way become more susceptible to disease, pests and environmental stresses.

Research at the U.S. Department of Agriculture (USDA), EPA and elsewhere has shown that ground-level ozone damages many kinds of trees and crops. Significant damage due to ground-level ozone has been seen in tree species such as black cherry, white pine, aspen and ponderosa pine. It also damages many kinds of crops such as soybeans, wheat, kidney beans, cotton and peanuts, resulting in significantly reduced crop yields. There are a number of significant benefits from

reducing adverse effects of ozone on forests, crops, vegetation and natural ecosystems. For example, specific benefits from ozone reductions in ambient concentrations would accrue from: decreased foliar injury; averted growth reduction of trees in natural forests; maintained integrity of forest ecosystems (including habitat for native animal species); and the aesthetics and utility of urban ornamentals (e.g., grass, flowers, shrubs and trees).

The extensive scientific review of the ozone standard included a review of the effects of ozone on trees, crops and other vegetation. The CASAC supplemented its panel with experts in plant biology and economics to examine the impact of ozone on crops, trees and vegetation. In the April 4, 1996, closure letter to EPA on this matter, George Wolff, chairman of the CASAC, wrote:

> "It should be pointed out that the Panel members all agreed that damage is occurring to vegetation and natural resources at concentrations below the present 1-hour national ambient air quality standard (NAAQS) of 0.12 ppm. The vegetation effects experts were in agreement that plants appear to be more sensitive to ozone than humans. Further, it was agreed that a secondary NAAQS, more stringent than the present primary standard, was necessary to protect vegetation from ozone...."

Background -- EPA's Revised Particulate Matter Standards

Historically, EPA's standards for particulate matter have often tended to focus emission control efforts on "coarse" particles -- those larger than PM-2.5. Before 1987, EPA's particulate matter standards focused on "total suspended particles," -- including

even larger-sized particles. In 1987, responding to new science showing that it was the smaller particles capable of depositing in the lungs that were associated with the most adverse health effects, EPA revised the standards to control only those particles equal to or smaller than 10 micrometers in diameter (or PM-10). For comparison purposes, a human hair is about 70 micrometers in diameter.

The most recent scientific review focused attention on the need to better address the "fine" fraction particles -- those equal to or smaller than 2.5 micrometers in diameter. CASAC recommended setting a fine particle standard. We continue to see adverse health effects from exposure to the "coarse" fraction (those between 2.5 and 10 micrometers in diameter) of PM at levels above the current standards. As a result, CASAC scientists agreed that existing PM-10 standards, with minor revisions, should be maintained for the purpose of continuing to control the effects of exposure to the "coarse" fraction of PM-10.

However, over twenty of the new health and atmospheric science studies have highlighted significant health concerns with regard to the smaller "fine" particles, or "fine" particle indicators. These particles are so small that several thousand of them could fit on the type-written period at the end of a sentence. In the simplest of terms, fine particles represent a health concern because they can remain in the air for long periods, both indoors and outdoors, and can easily penetrate and be absorbed deep into the lungs. These fine particles are not only associated with serious health effects, but are also a major reason for visibility impairment in the United States in places such as national parks that are valued for their scenic views and recreational opportunities.

For example, visibility in the eastern United States, which should naturally be about 90 miles, has been reduced to under 25 miles.

These fine particles get into the air in two ways. They are emitted directly into the air from a variety of sources such as diesel buses, utility and commercial boilers, woodburning, and construction activities. These are known as "primary" or direct emissions. Fine particles are also chemically formed in the air from sulfur or nitrogen gases emitted from sources such as power plants, motor vehicles, or fuel combustion and can be transported many hundreds of miles. These are known as "secondary emissions."

Based on our analysis to date, we believe that "secondary" particulate matter -- sulfates and nitrates formed from nitrogen oxides and sulfur dioxide gas emissions from power plants, for example -- generally represents the largest percentage of PM-2.5 in the air. Since secondary PM-2.5 is formed in the atmosphere and often transported much greater distances than "coarse" particles, EPA and states will need to assess regional, rather than local-only, emission control strategies to reduce PM-2.5.

Issues Surrounding Fire in Forest Management and EPA's Particulate Matter Standards

EPA recognizes that fires have always been a natural part of forest ecosystems. Forest fires release important nutrients from flammable "fuels" or debris on the forest floor into the soil. By reducing the undergrowth and debris on the forest floor, trees typically grow taller and healthier since there is less competition by other surrounding plants for nutrients. For many years fire was aggressively suppressed in our Nation's

forests, resulting in a number of problems, including long-term damage to the health of trees and heavy accumulation of dead vegetation on the forest floor, which can lead to catastrophic wildfires. We now know that smaller, periodic fires that are well managed help prevent these catastrophic wildfires.

In recognition of the serious problems caused by years of fire suppression, the U.S. Departments of Agriculture and the Interior jointly released the results of a Federal Wildland Fire Management Policy and Program Review in 1995. This report recognized the critical role fire plays in maintaining healthy wildland ecosystems and endorsed a significant increase in the use of planned, or managed, fire as a land and resource management tool. The Departments of Agriculture and the Interior adopted a policy that all future plans to manage fires on wildlands will incorporate public health and environmental considerations, including air quality. EPA also participated in developing the 1995 Program Review and I endorsed its recommendations.

Unplanned wildland fires, such as catastrophic wildfires, can pose serious threats to property and public safety. Wildfires cause extended periods of intense smoke, which contains particulate matter that can cause serious health problems, especially for people with respiratory illness. They can also affect visibility, a particular concern in national parks, forests and wilderness areas.

On the other hand, fires can be managed or planned to minimize the smoke impacts that adversely affect public health and impair visibility. This can occur through techniques such as scheduling burning during favorable wind directions and weather

conditions and controlling the amount of fuel or acreage burned. Many planned fire activities are already subject to state air quality regulations.

In developing a common-sense implementation strategy for the new ozone and particulate matter standards, EPA used the Federal Advisory Committee Act to create a subcommittee to obtain advice from outside experts representing industry, environmental, state, local, federal and other stakeholders. As part of this process, EPA established a special workgroup comprised of fire and air quality experts from the U.S. Departments of Agriculture, the Interior, and Defense; the National Association of State Foresters, state/local air quality agencies and others to develop a National Wildland Fire/Air Quality policy.

This policy will integrate the two goals of achieving sound ecosystem management, including the use of fire, and protecting public health. It will establish recommended practices for managing smoke impacts on air quality from wildland fires. It will also outline how land owners/managers can work cooperatively with state and local air pollution control officials to conduct integrated planning to successfully manage ecosystem health and air quality concerns. We expect to issue this Wildland Fire/Air Quality Policy early next year in conjunction with our guidance on implementation of the new fine particle standard.

This policy is being developed considering the 1996 recommendations from the Grand Canyon Visibility Transport Commission, a multi-stakeholder effort comprised of eight Western state governors, several Native American Indian tribal leaders and officials from federal agencies, including EPA, the U.S. Forest Service, and the U.S.

Department of the Interior. The Commission was established by the Clean Air Act, as amended in1990, to advise EPA on strategies for protecting visual air quality at 16 national parks and wilderness areas on the Colorado plateau.

The Wildland Fire/Air Quality policy will also build on the so-called "natural events" policy that EPA issued in 1996. The natural events policy was developed to address the role of natural events, including wildfires, in meeting PM-10 air quality standards. Under this policy, EPA has committed not to redesignate areas as nonattainment when natural events are clearly the cause of the problem. However, states would still be required to have plans in place to respond to any adverse health impacts associated with a natural event, such as a wildfire. We have also committed to work with states to redesignate nonattainment areas to attainment when these areas have shown compliance with the national air quality standards, except during unique periods caused by natural events.

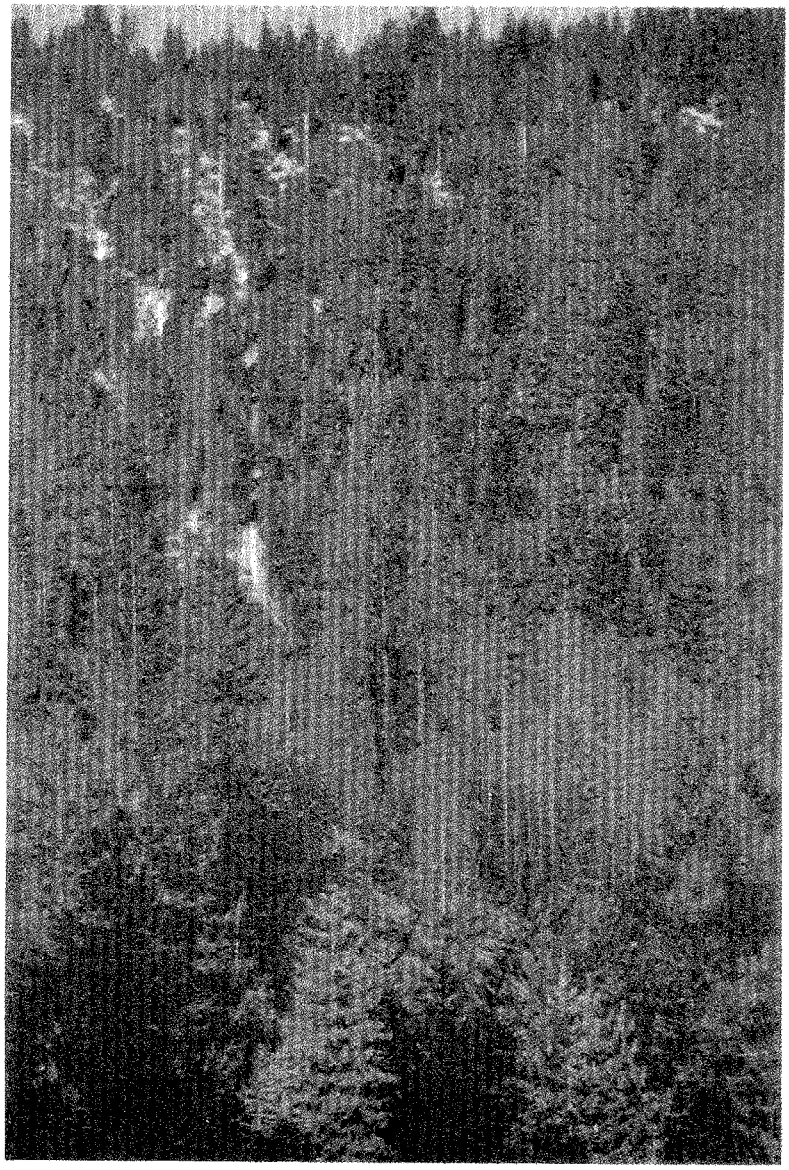
Our goal is to provide this same kind of flexibility with the Wildland Fire/Air Quality policy, and not to punish areas that follow the policy, yet occasionally experience unavoidable smoke intrusions.

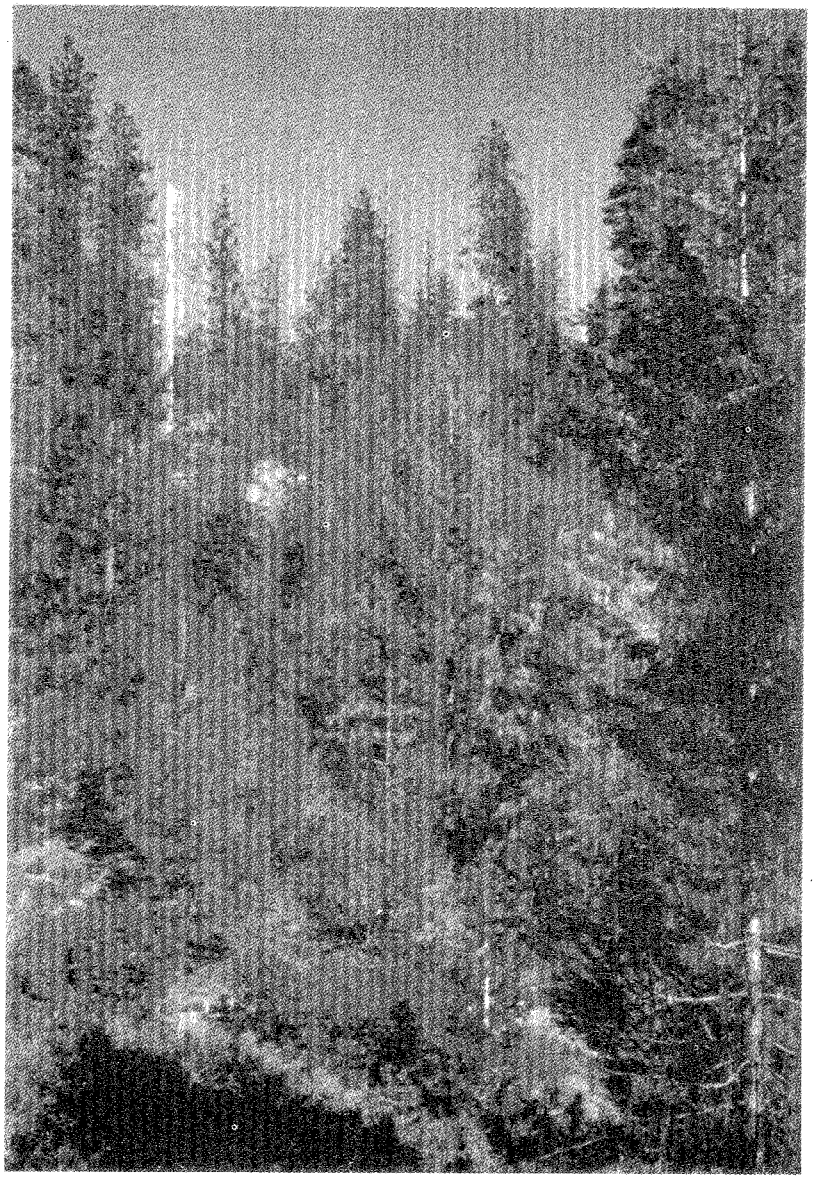
Conclusions

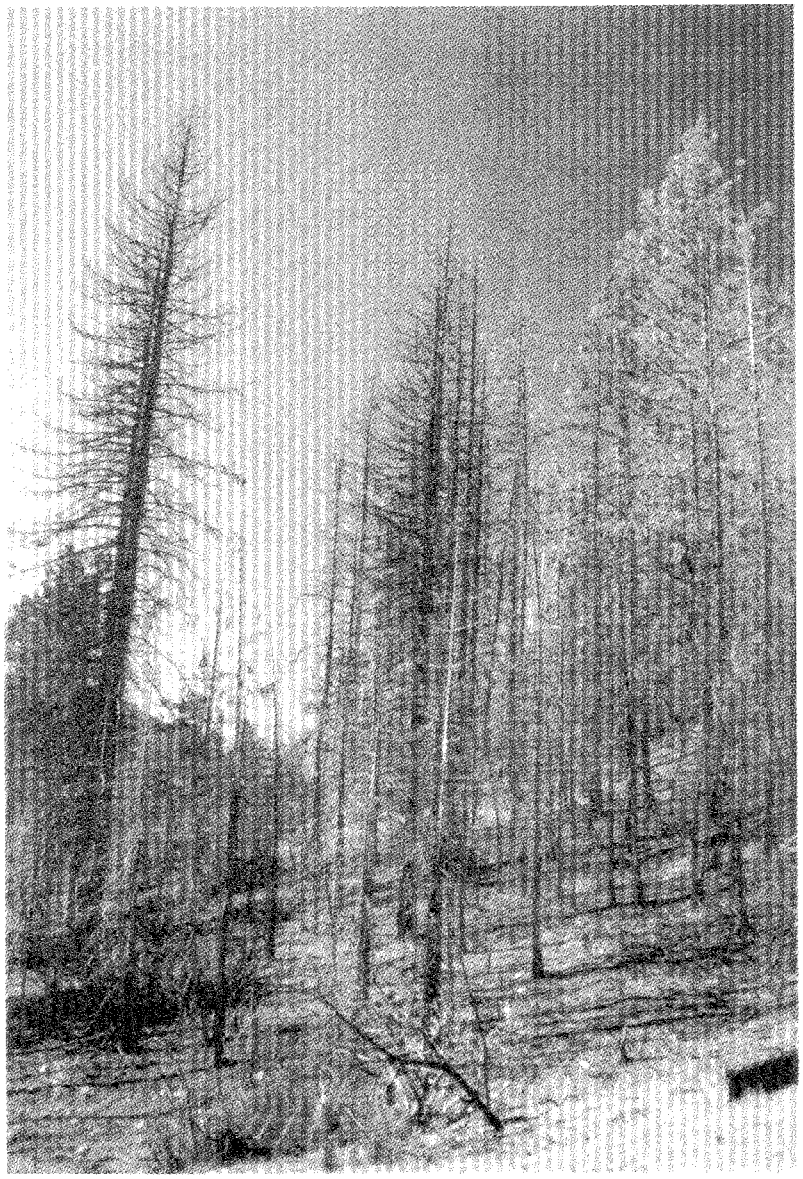
In summary, the best available science indicates that trees, crops and other vegetation will benefit from programs designed to meet the new air quality standards for ground-level ozone. For particulate matter, EPA recognizes the fact that fires have always been and will continue to be an integral part of healthy forests and ecosystems. We are working closely in partnership with the U.S. Departments of Agriculture and the

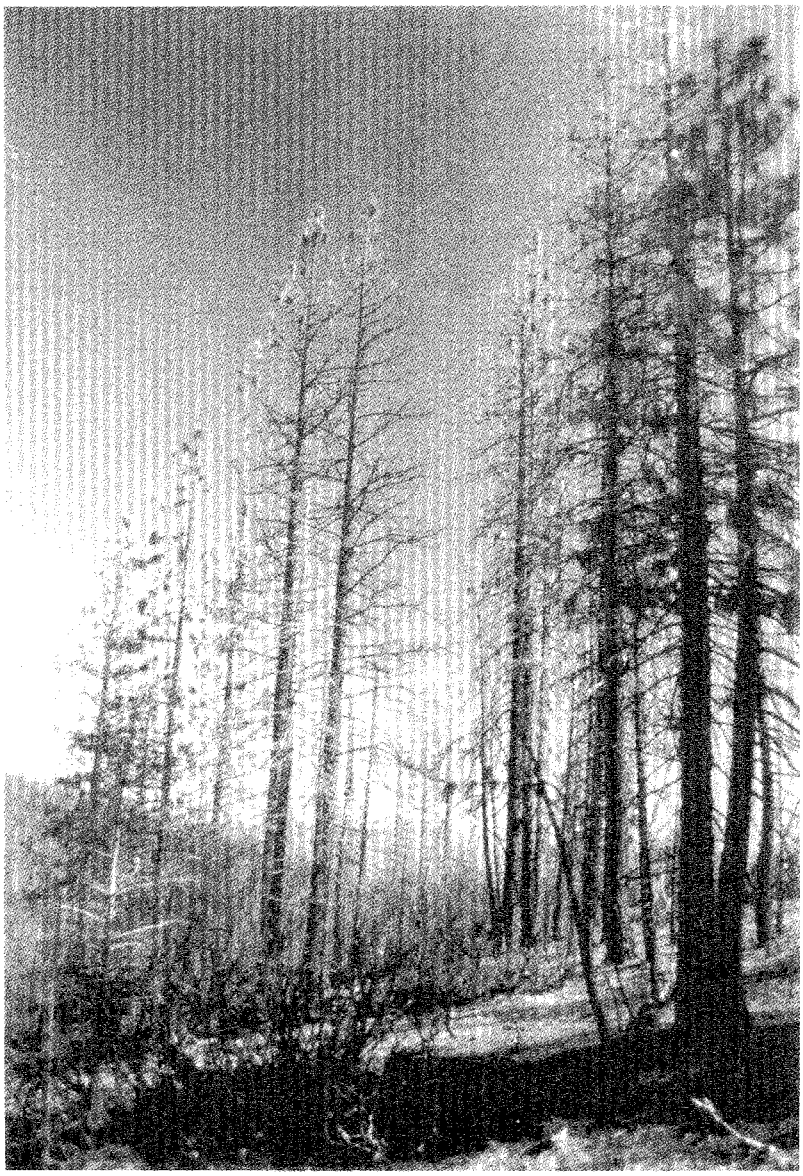
Interior, as well as state land managers and air quality officials to develop a policy that will ensure that the necessary managed fires occur in a way that minimizes air quality problems.

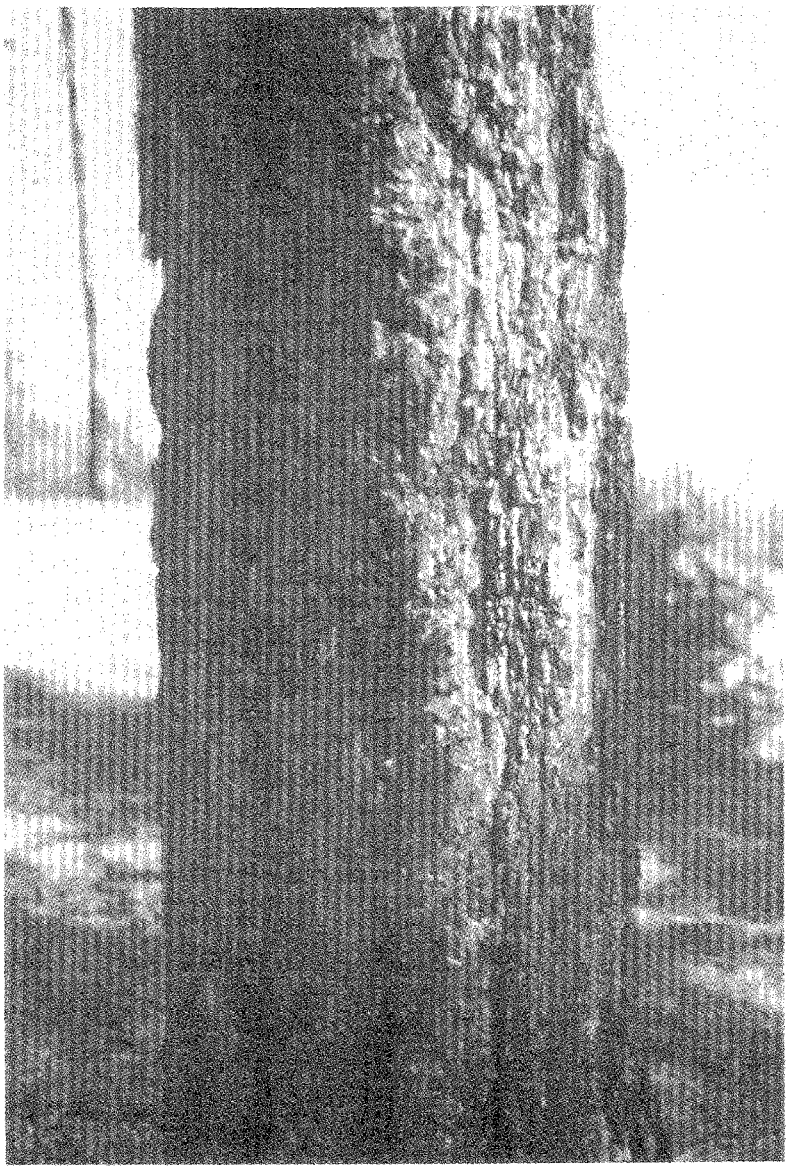
Mr. Chairman, this concludes my written statement. I will be happy to answer any questions that you might have.

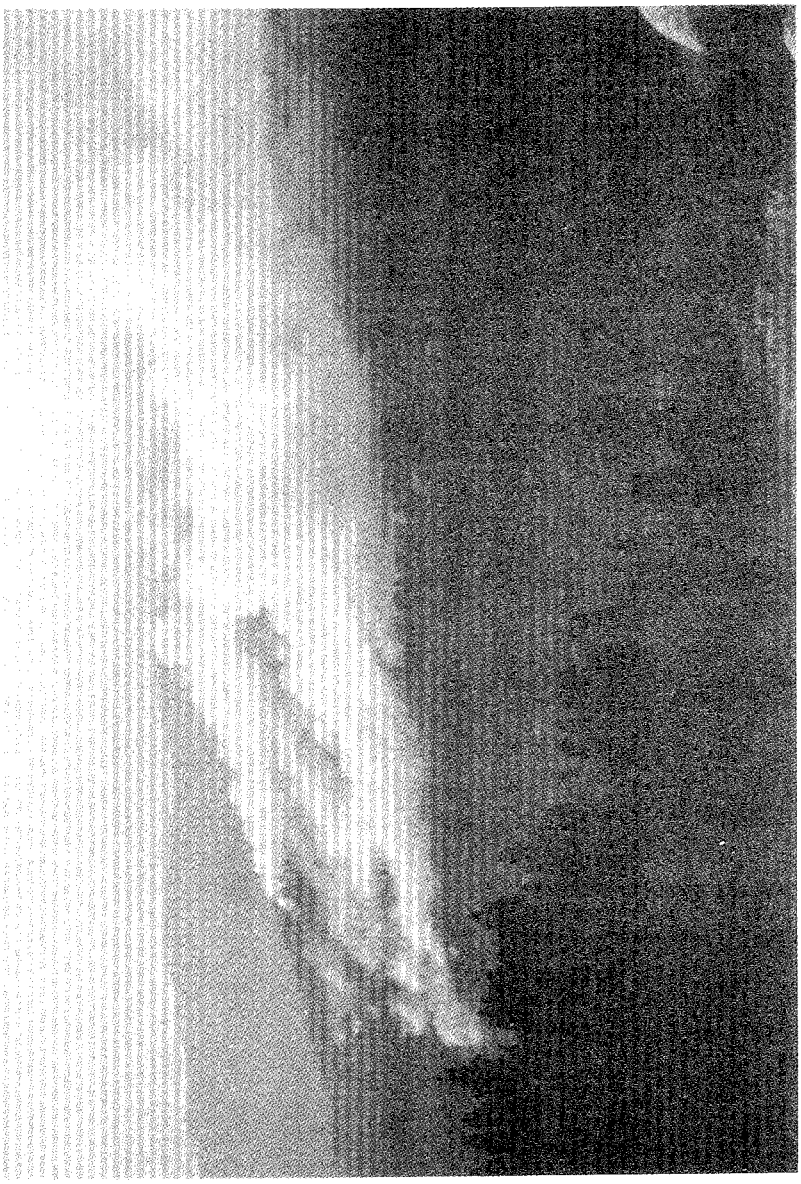


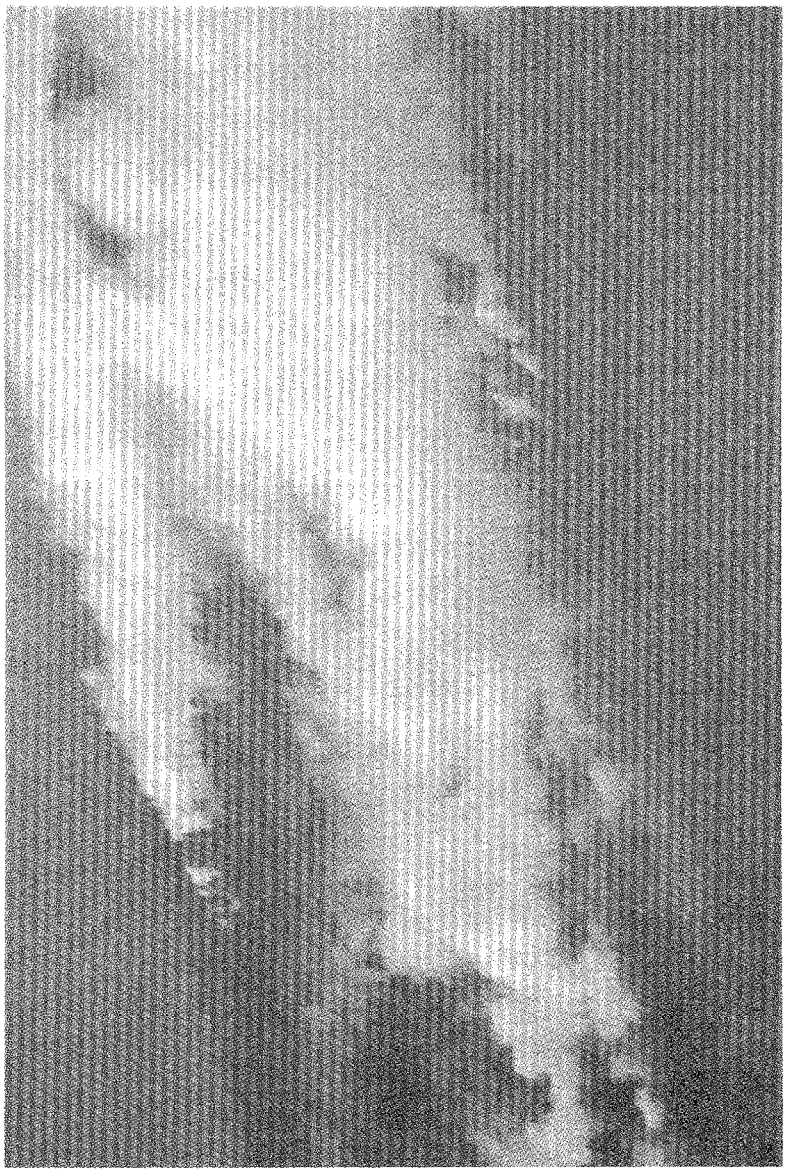


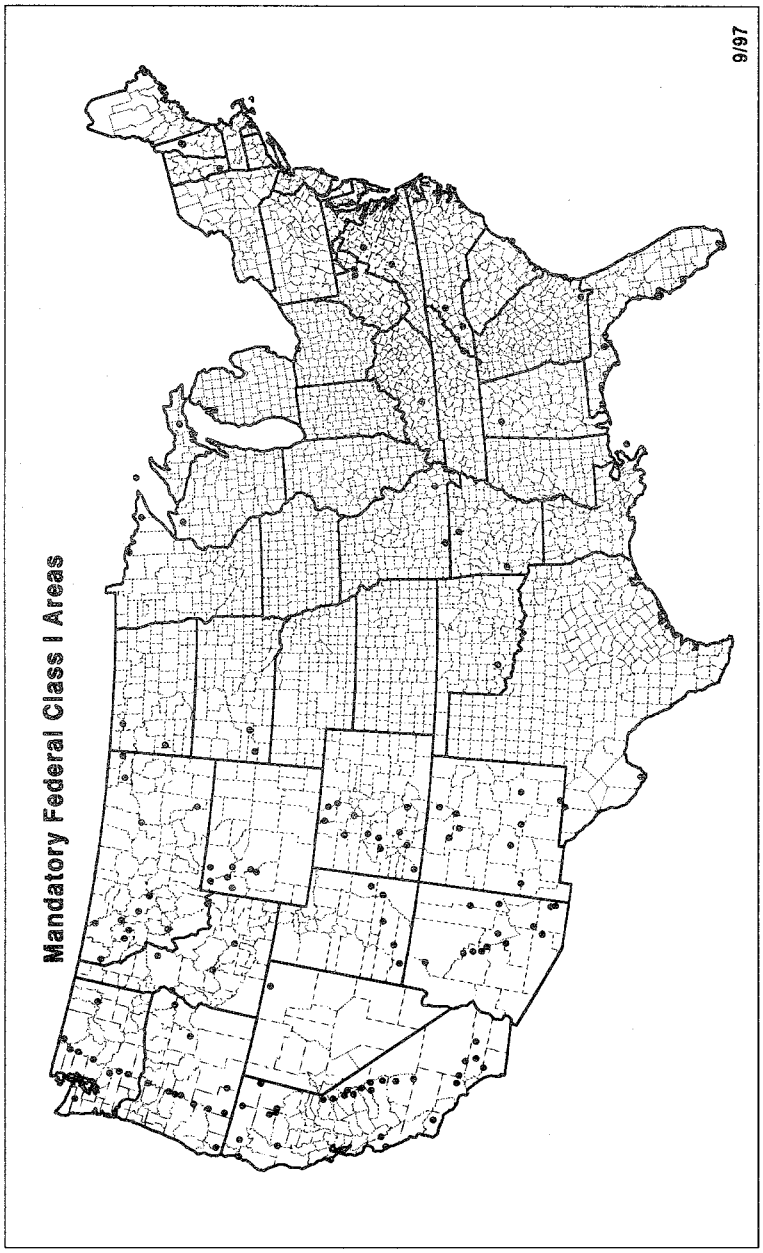


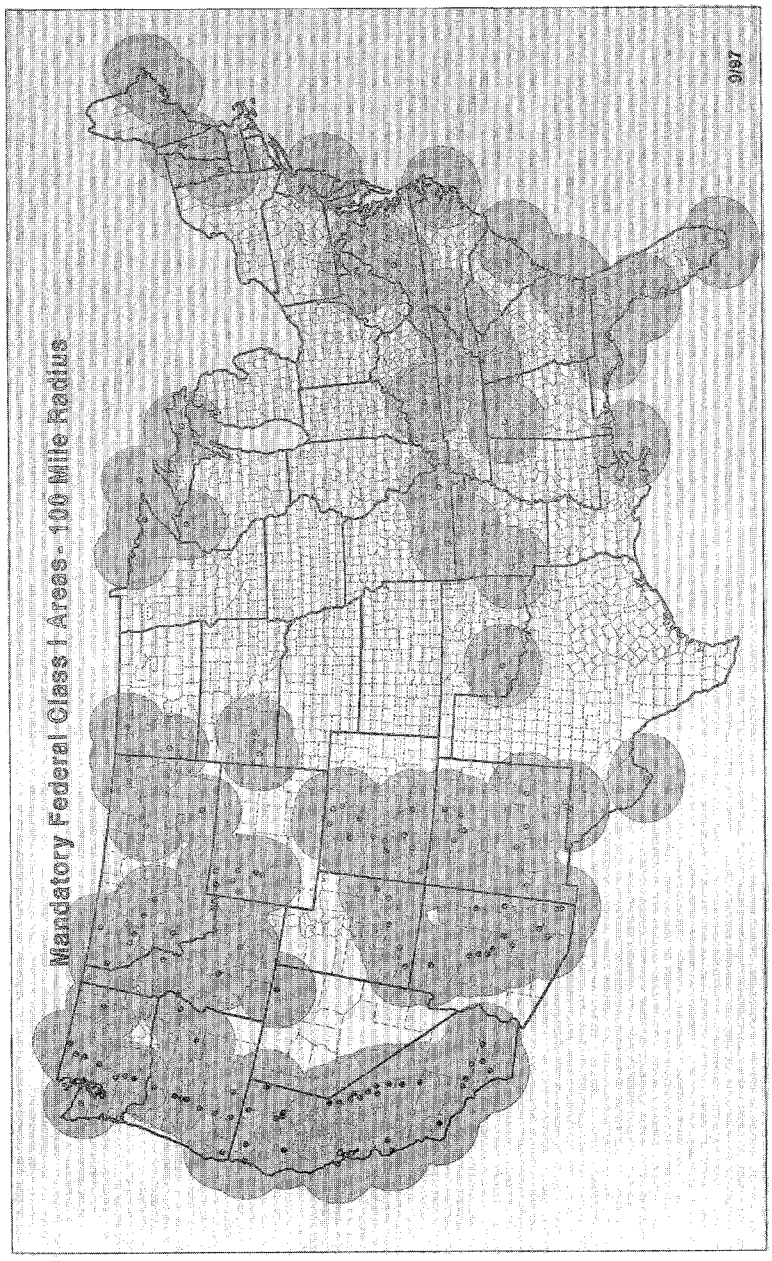









Mandatory Federal Class I Areas
9/97


Mandatory Federal Class I Areas - 100 Mile Radius
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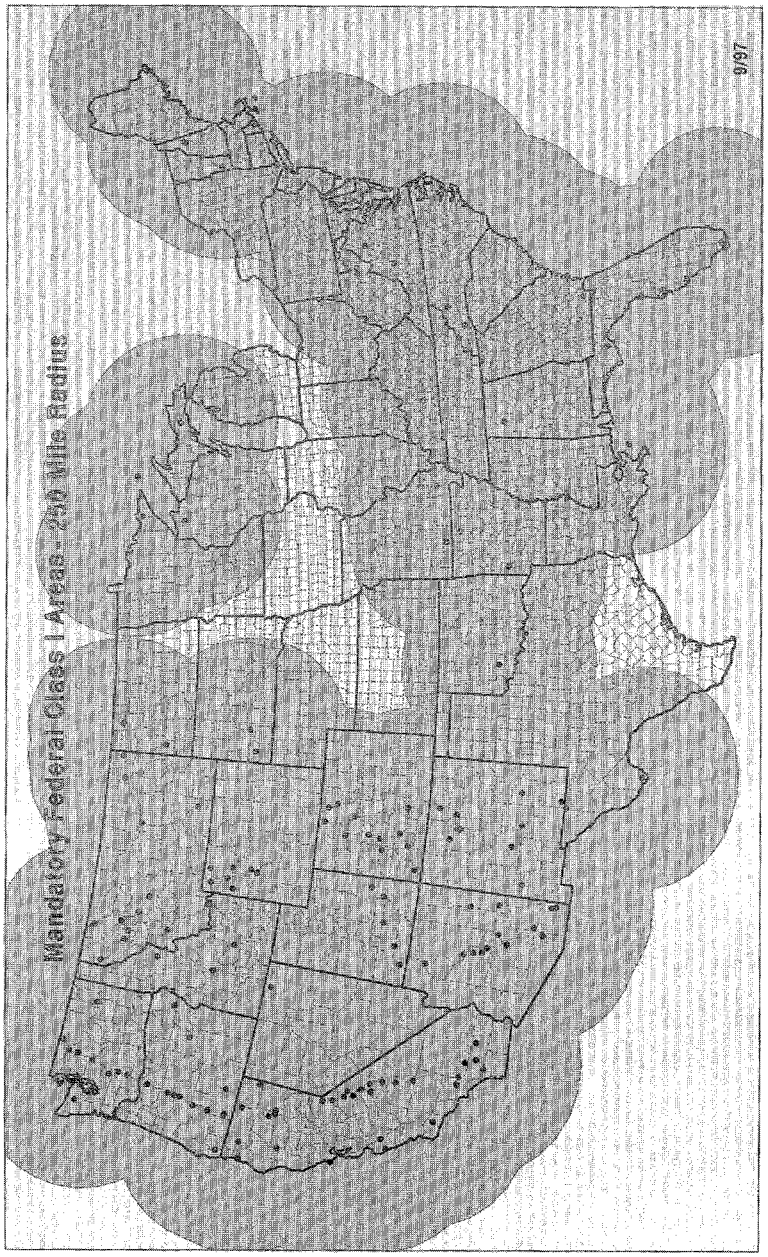
Mandatory Federal Class I Areas - 250 Mile Radius
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CITY
OF
SALMON 200 MAIN STREET / SALMON, IDAHO 83467 / (208) 756-3214

April 29, 1997

Joe Stanko
House Committee on Commerce
Room 2125 Rayburn
House Office Building
Washington, D.C. 20515

Dear Mr. Stanko:

Thank you for inviting me to testify at the hearings on the Environmental Protection Agency's proposed revisions to the primary and secondary ambient air quality standards for particulate matter. I am sorry that I cannot attend the hearings, but would like the following comments to be considered.

First I would like to provide information about Salmon, Idaho. We are a town of 3,100 persons located in Lemhi County, which has a total population of 6,669 people in an area that covers 4,580 square miles. The city is located along the pristine Salmon River and is adjacent to the 2.4 million acre Frank Church River of No Return Wilderness Area. The closest city of any size is located 140 miles away. The largest land owner in the county is the federal government, with 92.2% administered by the Forest Service and the Bureau of Land Management.

There are no manufacturing plants in Salmon. We do not have industry that degrades the air quality and pumps pollutants into the air. The largest employer is the government. The economy is based on agriculture and tourism. We believe we have the crystal clean air associated with remote mountain communities. We also know that at times Salmon cannot meet the proposed air quality standards.

The Idaho Division of Environmental Quality (IDEQ) installed an air quality monitor in Salmon several years ago. This monitor has shown that at times the air in Salmon was perilously close to failing the current air quality standards. This was because of forest fires and short term inversions in the winter. These fires occur as far away as Washington, and the smoke from these fires covers the Northwest. It is the particulate matter in this smoke that degrades the air quality in Salmon, and in the surrounding wilderness area. If the City of Salmon could pave all streets and parking lots within the

city, reduce or eliminate all wood burning stove use, require oxygenated fuels and vehicle emission tests. we would still fail to meet the proposed standards because of forest fires.

In addition to the above, please consider the following:

1. The EPA has stated that only three additional counties in Idaho will be affected by the proposed air quality standards. This statement was made because of information gathered from those three counties. No other counties have air quality monitors in place. When monitors are placed in those counties, they will also fail to meet the standards. If the most sparsely populated county in the state, Lemhi County, does not meet these standards. then no county in Idaho can meet the attainment level.

2. The costs to implement programs required by the proposed standards will be exorbitant, and cities like Salmon simply have no funds for monitoring, paving of streets, mass transit, and emission reduction.

3. Low income residents of Salmon will be paying the price of compliance with the proposed standard. They are the ones dependent on wood stoves for a source of heat. They are the ones that use the gathering of firewood as a source of income. They are the ones driving the older cars that will probably need repairs to meet the higher standards and they are the ones that can least afford an increase in taxes to help pay for ineffective air quality improvement programs.

4. Federal agencies have differing agendas affecting air quality and the cities are caught in the middle. The EPA says we do not meet air quality standard (because of forest fires) and the Forest Service has notified us that they plan on having prescribed burns, for forest health, because of restricted logging as a result of EPA rules.

The EPA has admitted that they do not know if the proposed standard will reduce death's cause by air pollutants and do not know any positive impact the new rules will have. The EPA has not shown that the benefit from implementation will outweigh the cost and suffering these rules will cause to the people of the nation. But in spite of this, the standards may be adopted. If so, we would ask that before any enforcement actions are taken against a county or local government, certain actions are taken by the EPA. These actions would include an evaluation of the cause of the particulate matter in the area and a factual determination that directly relates to remediation. In other words, the EPA should determine if the pollutant is being produced within the jurisdiction and if any action taken by the jurisdiction will actually have a direct impact on air quality. Another proposal that we ask to be considered is that exemptions be made for jurisdictions that meet certain criteria, such as population factors, health department studies or inventories of possible pollutant sources.

We value clean water and air. These are parts of our environment that are special to those that live here, and those that visit the area. Clean air and water are vital to our livelihood and lifestyle and we are very protective of these essentials. We will do what is necessary to maintain and improve the factors that provide us with a style of living envied by many others. But the Environmental Protection Agency has not shown that the proposed ambient air quality standards will be of benefit to the people of Salmon. These standards will place a burden on the finances and health of the residents of Salmon and will not result in cleaner air.

Thank you again for this opportunity to comment on the proposed standards

Sincerely,

Stanley B. Davis

Stanley B. Davis
Mayor

THE FEDS

Chasing Smog into the Country

Hundreds of rural communities that don't think they have a pollution problem are about to be told they're wrong.

BY TOM ARRANDALE

For much of America, dirty air has always been seen as just another big-city problem. There are 106 U.S. counties with more than 75 million people that violate the federal government's current standard for ground-level ozone pollution, but they are urbanized counties, nearly all clustered around smoggy metropolitan centers with big industries and congested highways.

As far as most rural residents are concerned, the smog-bound urbanites don't deserve too much sympathy. They knew what they were getting when they decided to live in the city. Besides, these city-dwellers always seem to balk at ideas that would help clean their communities up, such as riding mass transit, paying more for fuel or taking their cars in for emissions checks to comply with clean air regulations.

But the environmental smugness of rural and small-town America is about to receive a jolt. The U.S. Environmental Protection Agency is telling 50 million Americans in 229 smaller counties that *they* might have to live with similar restrictions to clear smog-forming ozone from the air. It is not an idea that will sell very well.

Nor will places such as Rapid City, South Dakota; Maynardville, Tennessee; and Lakeview, Oregon, enjoy being told that microscopic soot in their atmosphere is also a national pollution problem and has to be addressed. Yet EPA Administrator Carol M. Browner holds the power to make them pay attention merely with two strokes of her pen.

Last November, EPA concluded that the national ozone standard, set at 0.12 parts per million since 1979, should be tightened to 0.08 ppm to keep the powerful oxidant from searing so many people's lungs and putting the most vulnerable in the hospital. Simultaneously, EPA complied with a court order, won by the American Lung Association, to augment regulations controlling soot, ash, metals, pollen and windblown dirt that wafts through the air, settles on window sills and irritates eyes and noses. One study estimates that 60,000 Americans die prematurely each year from breathing fine particulates, and EPA proposed a new, more stringent limit for airborne particles as small as 2.5 microns in diameter.

When the limits get that low, smaller places that don't think of themselves as polluted start to show up in violation. EPA estimates that 167 counties across the country, including some farming areas with fewer than 10,000 residents, won't be able to meet its revised particulate standard.

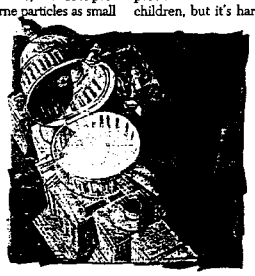
Environmental regulators in many states are complaining that the agency has made no case to justify the burdens that these communities will take on if they're forced to comply with the new rules. "EPA's saying 'Just a little bit more,' but I'm not sure how we're going to do that, frankly," says Ohio Environmental Director Donald R. Schregardus.

Ohio already has spent more than $1 billion and sacrificed 10,000 jobs as it's struggled to curb ozone emissions, Schregardus says. All of a sudden, at least 21 smaller Ohio counties, including several that just last year managed to meet the existing ozone regulation, will find themselves in violation of the new one. The same will be true in the sparsely populated West after the particulate standard goes into effect. "A lot of people in Big Sky country who think Pittsburgh and Detroit are dirty are going to be surprised when they see how this standard hits them," predicts James M. Seif, Pennsylvania's environmental resources secretary.

In some states, environmental regulators think every county could have a problem staying within the particulate limit. "We're out here in Dust Bowl country, and there's a lot of burning of wheat stubble around here," says Steven A. Thompson, Oklahoma's deputy environmental quality director. And nobody has any process in place for monitoring particles as small as the ones the EPA now would like them to look for.

EPA is promising that states will have the flexibility to figure out new ways of complying with the new standards. The agency has been encouraging 17 states to agree on a regional strategy for curbing smog-forming chemicals that may sometimes drift from the Great Plains clear to the Atlantic Seaboard. States also will need some leeway to try non-regulatory methods to control particulates that come from wood-burning stoves, farm operations, prescribed forest fires and unpaved roads. It's estimated that counties and cities in all 50 states will find themselves in violation of the new particulate standard and that state agencies will need to spend $20 million just for the sophisticated monitors they'll need to find out which areas have a problem.

There's almost certain to be a political backlash in Congress when the clean air law starts reaching the country's furthest corners. No governor is going to publicly object when Browner proclaims that she's protecting senior citizens and asthmatic children, but it's hard to imagine the Rapid Cities and Maynardvilles of America going along with lifestyle changes that the urban Northeast has not accepted.



The fact is, state environmental chiefs have a legitimate right to raise the issue of whether the country is ready to make its pollution controls even tougher. Before asking states and local communities to take the political heat, it might not be a bad idea for Browner and her mentor, Vice President Al Gore, to lay out honestly just what Americans all over the country will need to do to meet the tighter standards. Then they'll have to trust that most people will decide healthy lungs are worth the price they have to pay for them. G

Sally Wern Comport illustration

NATIONAL ASSOCIATION OF STATE FORESTERS
444 North Capitol Street, NW Suite 540 Washington, D.C. 20001 202/624-5415

US House of Representatives
Committee on Resources

September 30, 1997
Testimony of Earl Peterson
Florida State Forester
Chairman, National Association of State Foresters Fire Committee

Fire as a Management Tool

Good afternoon and thank you for the opportunity to testify before this subcommittee. I am Earl Peterson, Director of the Florida Division of Forestry and State Forester of Florida. I also serve as the Chairman of the National Association of State Foresters Fire Committee. I will share with you some observations about the use of fire as a management tool, both in Florida and nationally.

As the Director of the Florida Division of Forestry, I am responsible for the management of over one million acres of state land, purchased by Florida's taxpayers to ensure that some of the unique ecology enjoyed by present day Floridians and millions of visitors to our state each year, will be there for generations to come. Without hesitation, I can say that one of the primary contributors to the current state of Florida's wildlands has been wildland fire.

In Florida, we call the use of fire as a management tool - "Prescribed Fire". And like a prescription issued by your personal physician, the medicine is aimed at curing a specific problem, while at the same time it can and often does have negative effects on other parts of the body. The trick is to make sure these "side effects" are not worse than the cure. So too, with prescribed fire.

Fire's role on state and private lands in Florida has been that of the sculptor, molding and shaping the system over many thousands of years. As a result many of the flora and fauna have now come to depend on periodic fire for their existence. If this element is excluded, the result will be a system that is far less diverse in both plants and animals. In addition to this, many of the timber species that the forest industry depends on for their survival will also disappear.

Many other forest and grassland ecosystems also evolved with fire, including much of the southeastern pine forest, as well as many coniferous forests in the Western U.S. Recent research has also indicated a larger role for fire in regenerating hardwood species like oaks. Each type of forest evolved with different types and intensities of fire, so prescriptions must be carefully matched to forest type. In some in-

stances, prescribed fire would not be the preferred tool for management of these stands.

Floridian's place so much importance on the use of prescribed fire, that in October of 1990 Florida Statute 590.026 "Florida's Prescribed Fire Act" became effective (see attached). This law provides civil liability protection for responsible prescribed burner's (see attached article - Florida's 1990 Prescribed Burning Act, Protection for Responsible Burners, Journal of Forestry May 1992). This means that as long as a burner adheres to the law and associated administrative code, they can not be found civilly liable for the potential negative effects of their prescribed burns, including smoke.

The [illegible] to lead the nation in promoting and practicing the art of prescribed burning, and Florida leads the South as well as the nation in prescribed fire activities. In 1996 Florida burned 2.2 million acres, most of it under canopy, and issued over 118,000 authorizations to accomplish this task.

We are very cognizant of the fact that we are graced with both favorable climate and associated topography to accomplish the mammoth amount of burning necessary to keep up with the rapid vegetative growth on our wildlands. In areas where mountainous terrain tends to trap smoke from wildland fires for days, weeks and even months, the amount of burning done in Florida may not be possible. Couple this with a policy of fire exclusion over the past 75 years that has resulted in enormous fuel accumulations from downed timber and insect and disease attack, the future of fire in these areas seems to be an almost impossible task. Because of this we have, curiously enough, tended to place the responsibility back in the hands of fire to solve our problem. Once the fuel loads get to the point where we can no longer control the wildfires that start, the system is swept with catastrophic wildfires that can leave the land scarred for centuries.

In short we have two choices in managing our wildlands, exclude fire until the system is overloaded and disaster strikes, or manage both wildfire and prescribed fire to balance the system. Floridians have chosen the latter solution. In addition to the prescribed fire act of 1990, all of the 67 counties in Florida have passed favorable resolutions in support of prescribed fire. In March of this year, Governor Chiles and the Florida Cabinet named the Week of March 11th prescribed fire awareness week.

There are mechanical and chemical methods that can duplicate some of the positive effects of prescribed fire. Reduction of the fuel load to reduce the potential negative effects of a catastrophic wildfire can be accomplished to some measure by thinning overstocked forests. This process is very labor intensive and can in some instances be very costly if there isn't a market for the removed timber as poles or firewood. However, such methods may be necessary where prescribed fire has not be used as a regular management tool and fuel loads are too high to allow immediate reintroduction of fire.

The negative side effect of prescribed fire is the impact from the resulting smoke. As you are no doubt aware, the U.S. Environmental Protection Agency is revising the National Ambient Air Quality Standards (NAAQS) and the visibility standard for the Prevention of Significant Deterioration (PSD) in class one areas. These changes in the standard could have a significant impact on the use of prescribed fire depending on how EPA intends to treat the contribution from prescribed fire. We believe the intent of the Federal Clean Air Act is to prevent the deterioration of air quality from anthropogenic sources (human caused). Since fire is part of the natural system and as pointed out earlier, necessary for the very survival of our wildlands, we believe that the resulting smoke should be considered "natural" and excluded from consideration if there is an exceedance of the standard.

Prescribed burn practitioners are trained to reduce the impacts of the smoke from prescribed burning to minimum. This will not eliminate the possibility of an exceedance of the NAAQS or the visibility standard, but we believe that the number of potential problems will be held to a minimum. The reason for this is simple, prescribed burn practitioners understand that the future of fire depends on the good will of the general public and their responsible use of this all important tool.

It is important to note that in some areas of the country, there is limited public tolerance for smoke from prescribed burns, and this has led to efforts to limit or end the practice. Many of these decisions will be in the hands of State air quality agencies and other State officials. NASF and our member State Foresters are and will continue to work with State and Federal air quality officials to craft regulations that will allow this ecologically important management tool to continue in use,.

In summary, we believe that prescribed fire, when used responsibly, is a necessary tool that ensures the future of our wildlands. Without this tool, our wildlands will suffer tremendous losses in diversity as well as economic value.

FLORIDA'S PRESCRIBED BURNING ACT

(3) DEFINITIONS.– As used in this section:

(a) "Prescribed burning" means the controlled application of fire to naturally occurring vegetative fuels under specified environmental conditions and following appropriate precautionary measures, which causes the fire to be confined to a predetermined area and accomplish the planned land management objectives.

(b) "Certified prescribed burn manager" means an individual who successfully completes the certification program of the Division of Forestry of the Department of Agriculture and Consumer Services.

(c) "Prescription" means a written plan for starting and controlling a prescribed burn.

(4) RULES.– The Division of Forestry of the Department of Agriculture and Consumer Services shall promulgate rules for the use of prescribed burning.

(5) REQUIREMENTS; LIABILITY.

(a) Prescribed burning conducted under the provisions of this section shall:

1. Be accomplished only when at least one certified prescribed burn manager is present on site while the burn is being conducted.

2. Require that a written prescription be prepared prior to receiving authorization to burn from the Division of Forestry.

3. Be considered in the public interest and shall not constitute a public or private nuisance when conducted pursuant to state air pollution statutes and rules applicable to prescribed burning.

4. Be considered a property right of the property owner if naturally occurring vegetative fuels are used and when conducted pursuant to the requirements of this subsection.

(b) No property owner or his agent, conducting a prescribed burn pursuant to the requirements of this subsection, shall be liable for damage or injury caused by fire or resulting smoke, unless negligence is proven.

(6) DUTIES OF AGENCIES.

(a) The Department of Community Affairs, the Division of Forestry of the Department of Agriculture and Consumer Services, anOrd the Office of the State Fire Marshal shall prepare a report to be submitted to appropriate legislative committees by February 1, 1991, that shall identify actions required to minimize the threat of wildfire in areas where new development is proposed in or adjacent to wild lands.

(b) The Office of Environmental Education of the Department of Education shall incorporate, where feasible and appropriate, the issues of prescribed burning into their educational materials.
History.– s. 2, ch. 90-234; s. 1, ch. 90-296.

◁PEER REVIEWED▷

Florida's 1990 Prescribed Burning Act

Protection for responsible burners

By Jim Brenner and Dale Wade

Most wildland managers are well aware of the ambivalent nature of fire. They know this natural phenomenon has awesome destructive potential under adverse fuel and weather conditions, but they also recognize it has the unique ability to produce a wide range of desirable outcomes under less severe conditions. Prescription burning is the process of igniting fires under selected conditions, to achieve specific objectives on a given area, in accordance with strict parameters. In recent years, this practice has come under increasing attack in Florida. Some public concerns about burning are well-founded, but some are caused by misconceptions and misunderstandings.

Florida's population has been growing at an unprecedented rate, and a large majority of new residents come from areas where the historical relationship between fire and the biota has long been severed. In Florida this relationship, already timeless when first described by de Laudonniere (1587) and other early explorers, has survived. For centuries, Native and European Americans have used fire to shape and maintain Florida's ecosystems. They learned that selective burning could enhance the quality of their lives. As in much of the South, fire was viewed as a benefit to the community. Fires often were set with little consideration for potential deleterious side effects, however. This attitude was perhaps exemplified by a Southern Appalachian resident in 1939: "Woods burnin's right. We allus done it. Our pappies burned th' woods an' their pappies afore 'em. It war right fer them an' it's right fer us" (Pyne 1982, p. 143).

As the population of Florida grew, prescribed burners increasingly had to become cognizant of the effect their fires had on the general population. In response to this emerging need for fire-related information, the Southern Forest Fire Laboratory, the first federal installation devoted to fire research, was built in 1958. In 1962, the Florida-based Tall Timbers Research Station began a series of fire ecology conferences that continues today.

Ranchers and foresters no longer ride through the woods flipping kitchen matches from horseback—a great deal more planning is now required to make sure a burn and its smoke will have minimal off-site impact. When

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this planning is not adequate, prescribed burning can be very costly indeed. The number of lawsuits against landowners pertaining to fire and smoke is increasing every year. The use of prescribed fire, as measured by acres burned, has decreased slightly over the last 10 years (*fig. 1*). Acreage burned for range management purposes is conservatively estimated at about 2 million acres per year. However, this number is not included in *figure 1* totals because it cannot be separated from burns for such objectives as sugar cane foliage removal and wheat stubble disposal, which are all lumped together under the general heading of "agricultural burning."

The fact that prescribed burning continues to be used on several million acres each year in Florida can be attributed to several factors: (1) a single fire can provide multiple benefits at a fraction of the cost of other alternatives; (2) prescribed fire is the only practical way to achieve some desired benefits, and (3) attempts at fire exclusion have not been successful in the long run without a concomitant (and usually unwanted) change in vegetative cover type. In a rare show of solidarity, many parties that normally hold opposing viewpoints—conservationists, preservationists, timber companies, ranchers, public agencies at local, state, and federal levels, and others—joined together to promote and protect the use of prescribed fire in Florida.

Prescribed Burning Act of 1990

A blue-ribbon committee translated these prescribed burning concerns into proposed legislation that was introduced into the 1990 legislative session. Representative Frances L. "Chance" Irvine and Senator Karen Thurman led the efforts to make sure everyone understood the critical need for such legislation. Thanks to them and the efforts of many others, the Florida legislature determined that prescribed fire is a land management tool that benefits the safety of the public, the environment, and the economy of Florida. Florida State Statute 590.026, the Florida Prescribed Burning Act, became law on October 1, 1990. This legislation, with its associated administrative rules, outlines accepted forestry burn practices in the state. It also protects prescribed burners from civil liability as long as they or their agents are not found generally negligent as defined in Florida Supreme Court ruling Midyette vs. Madison, No. 74,091 (1990). In addition, prescribed burns conducted in accordance with the statute may no longer be terminated because of nuisance complaints.

This law authorizes and promotes the continued use of prescribed burning for ecological, silvicultural, wildlife management, and range management purposes. The advantages of prescribed fire are outlined in the statute as follows:

1. Prescribed burning reduces naturally occurring vegetative fuels within wild land areas. Reduction of the fuel load reduces the risk and severity of major catastrophic wildfire, thereby reducing the threat of loss of life and property, particularly in urbanizing areas.

2. Most of Florida's natural communities require periodic fire for maintenance of their ecological integrity. Prescribed burning is essential to the perpetuation, restoration, and management of many plant and animal communities. Significant loss of the state's biological diversity will occur if fire is excluded from fire-dependent ecosystems.

3. Forest land and range land constitute significant economic, biological, and aesthetic resources of statewide importance. Prescribed burning on forest land prepares sites for reforestation, removes undesirable competing vegetation, expedites nutrient cycling, and controls or eliminates certain forest pathogens. On range land, prescribed burning improves the quality and quantity of herbaceous vegetation necessary for livestock production.

4. The state purchased hundreds of thousands of acres of land for parks, preserves, wildlife management areas, forests, and other public purposes. The use of prescribed burning for management of public lands is essential to maintain the specific resource values for which these lands were acquired.

5. A public education program is necessary to make citizens and visitors aware of the public safety, resource, and economic benefits of prescribed burning.

6. Proper training in the use of prescribed burning is necessary to ensure maximum benefits and protection for the public.

7. As Florida's population continues to grow, pressures from liability issues and nuisance complaints inhibit the use of prescribed burning.

Legal Requirements and Liability

This legislation is intentionally general. It allows the Department of Agriculture and Consumer Services, through the rule-making process, to establish and update specific guidelines as necessary. In order to receive protection under this law, at least one certified prescribed burn manager must be present while the prescribed burn is being conducted. In addi-

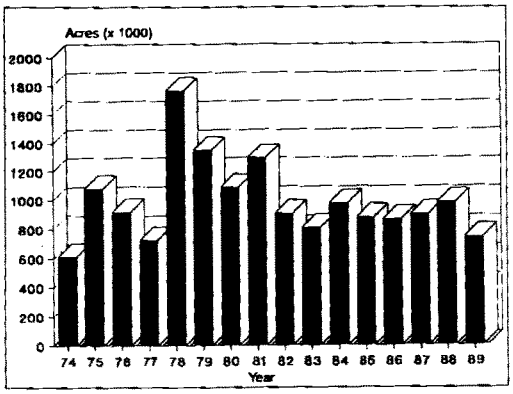

Figure 1. Silvicultural burn acreage in Florida, 1974–89.

The Florida Prescribed Burning Act of 1990 specifically endorses prescription burning as a valid resource management tool.

tion, a written prescription must be prepared before the Division of Forestry can grant an authorization to burn. This prescription must be available on-site during the burn.

Prescription burns that adhere to these two conditions receive the following protection under the law:

1. Be considered in the public interest and shall not constitute a public or private nuisance when conducted pursuant to state air pollution statutes and rules applicable to prescribed burning.
2. Be considered a property right of the property owner if the fuel is naturally occurring vegetation and it is burned pursuant to the requirements of this law.
3. No property owner or his agent, conducting a prescribed burn pursuant to the requirements of this law, shall be liable for damage or injury caused by fire or resulting smoke, unless negligence is proven.

The Department of Agriculture and Consumer Services has expanded its rules on open burning to include specific language that outlines the responsibilities of both the department and the burner. One of the most important requirements of Florida's prescribed burn law is the written plan or prescription. The rules define exactly how this document is to be prepared. It must include but is not limited to (1) stand or site description; (2) map of the area to be burned; (3) personnel and equipment to be used; (4) desired [illegible] ther (surface windspeed and direc- [illegible], transport windspeed and direction, minimum mixing height, minimum relative humidity, maximum temperature, fine-fuel moisture); (5) fire behavior factors (burn technique, flame length, rate of spread); and (6) signature of the certified burn manager.

The rules require that the certified burn manager screen the prescription for possible negative smoke impact on the surrounding area prior to approving the prescription. His or her signature on the plan indicates approval. The Florida Supreme Court found in Midyette vs. Madison that prescribed burners can only be found generally negligent if they do not follow "accepted forestry practices." The Florida Statutes and Administrative Code was changed in January 1991 to clearly define accepted forestry practices; omission of any of the above steps would constitute general negligence.

Certification Courses

Individuals become certified prescribed burn managers in Florida by completing either of two fire classes. The Certified Burners Course is tailored to people with considerable prescribed burning experience. Its one-day training and exam, given at Florida Division of Forestry district offices, exposes attendees to current fire management regulations and the policies of federal, state, and county agencies.

The Inter-Agency Basic Prescribed Fire Course is designed for people with less experience. It provides 40 hours of intensive training that includes both classroom discussions and field exercises. A prerequisite to course completion and certification is experience in both the planning and execution phases on at least three prescribed burns. To become certified, individuals must also pass a written examination given at the end of the course. In addition, 20 to 30 hours of reading are assigned before attendance at either course.

The number of Inter-Agency Basic Prescribed Fire classes offered has increased each year; seven are scheduled for fiscal year 1992. Since the course was first offered in 1988, more than 1,600 people have been certified throughout the South. Class size is limited to 30 students, and the number of applicants far exceeds the number of available slots. This backlog should continue to rise for several years as more and more people become aware of the protection the law affords to silvicultural and range management burners.

Maintaining the Benefits

The indiscriminate use of controlled fire, which was characteristic of the Old South, has long since been replaced by well-planned and carefully executed prescribed burns. However, Florida's fast-growing population, with the accompanying urban sprawl and expanding highway network, suggests additional constraints are likely. Smoke and fire are ordinarily not compatible with suburban residents and travelers.

Most state forestry agencies now have the statutory responsibility to authorize prescription burns. Because Florida has been a nationwide leader in population growth for the past several decades, the impact of this increase on natural resource management was experienced sooner than in other states. In 1977 Florida passed the Hawkins Bill, which contained procedures under which the Division of Forestry could prescribe-burn hazardous accumulations of wildland fuels on private land (Wade and Long 1979). The intent of the law was to reduce the conflagration potential on absentee landholdings. Close to 50,000 acres have been burned under its auspices.

We firmly believe that resource managers will have to become even more skillful in applying prescribed fire and in educating the public about the ramifications of their decisions regarding the continued intentional use of this ecosystem

process. Society has given fire managers the authority to use prescription fire as they deem necessary, but this authority can be revoked at any time.

Wildland managers who use prescribed fire would do well to adhere to the words of Herbert Stoddard, one of the first advocates of this practice: "Fire may well be compared to a two-edged sword which requires judgment, care, and experience to properly handle, and I obviously cannot be responsible for the way in which fire is actually used on any ground but my own" (Tall Timbers Research Station 1961, p. 50). Stoddard also had some advice for those who would terminate the use of fire in resource management: "The conditions under which developed the magnificent virgin stands of southeastern pines having included frequent burning, surely carefully controlled fire for the benefit of animal life adjusted along with the forests to periodical, though uncontrolled, burning through the ages has the merit of following an established and successful procedure. In our opinion, to exclude fire permanently from the park-like pinelands of the Southeast is to jeopardize both the flora and fauna and to contribute to their replacement by other and inferior types of animal life and vegetation. How many who are advocating total fire exclusion in this region have seriously considered the consequences of disturbing this age-old adjustment?" (Tall Timbers Research Station 1961, p. 197).

The South's fire heritage has allowed it to lead the nation in promoting and practicing the art of prescribed burning. Passage of this landmark legislation is one more indication of the critical importance fire plays in southern land management. ■

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STATEMENT OF
WILLIAM N. DENNISON
Plumas County Supervisor, District 3
BEFORE THE
COMMITTEE ON RESOURCES
UNITED STATES HOUSE OF REPRESENTATIVES

OVERSIGHT HEARING
"USE OF FIRE AS A MANAGEMENT TOOL, ON THE NATIONAL FORESTS"
SEPTEMBER 30, 1997

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:
Thank you for scheduling these oversight hearings and for the opportunity to convey both support and concerns for the utilization of prescribed burning on national forests. Our support is based on the belief that prescribed burning must be reintroduced into the ecosystem, as we attempt to restore the health of many of our national forests. The concern is that prescribed burning will be utilized without serious consideration for prior removal of heavy fuel loads. Mechanical removal of the heavy fuels must be the first entry in many of our northern California national forests, if we are to utilize prescribed burning to reduce the fuel loading, achieve the goals for a "healthy forest" and meet the new, more stringent National Ambient Air Quality Standards (NAAQS) for particulate matter (PM10/PM2.5)

In addition, we believe that there is need to review the current Department of Interior "management of prescriptive natural fires" policy in national parks. Due to regulations, the Park Service has less latitude to manipulate the forest stands prior to fire ignition and smoke management becomes a serious problem in and around national parks. This is important, because all fire incidents add to the difficulty of attaining the new (NAAQS) for particulate matter and related proposed Regional Haze Regulations for protection of visibility in national parks and wilderness areas (Class 1 Areas). These proposed Haze Regulations must be of concern to all of us, based on the July 18, 1997 fact sheet, since:
1) The regulations will apply to all states, even if they do not include Class I areas.
2) We can not reach those standards until we are able reduce the fuel loads in our forests.
3) We are put on notice on the last page that: "As noted above, the principal human-made sources of pollutants contributing to fine particles in the air include electric power generation, automobiles and other mobile sources, industrial manufacturing activities, burning related to forestry and agricultural activities, and dust from roadways and construction activities. ***Sources in these and other categories may be affected by this rule, depending on the level of visibility-specific strategies in each state." (emphasis added)***

It is fair to suggest that we have two trains coming from different directions; prescribed burning policies and the National Ambient Air Quality Standards, with the Haze

Regulations as a heavy caboose. I question whether or not, there is someone at the switch to assure that there is not a collision. Additionally, we should look ahead to see who may be injured when the two trains meet.

When they do collide, and while the smoke is clearing, based on history, it is my belief that businesses, industry and individuals in my community will be unfairly impacted by air pollution control regulations and violations attributed to them, that will lead to designation of adjacent areas to federal nonattainment of the PM standard(s). Considering our past efforts of prohibiting open burning in some areas and our sincerity in attempting to meet the PM10 Standard, this would be very unfair.

I offer the following as one of the reasons for concern:
One week prior to the Huffer Fire in Lassen Volcanic National Park, Rod Hill, Air Pollution Control Officer, Northern Sierra Air Quality Management District, stated in an August 1, 1997 newspaper article that "...on July 17, EPA adopted more stringent National Ambient Air Quality Standards for ozone and particulate matter." He said that, "...the biggest source of PM2.5, which must be controlled is smoke.", and that "The key to successfully maintaining attainment of the new federal standards is in controlling the growth in the numbers of wood stoves and getting the older, less efficient wood stoves into the recycling bin." The use of wood stoves in rural areas in general and Plumas County in particular is based on economics, not living room atmosphere. The loss of opportunity for wood heat would be significant to many families.

In a letter to Lassen Volcanic National Park Superintendent Marilyn Parris, following the Huffer Fire, which I will review in a minute, Mr. Hill rightfully emphasized the conflict between the Park Service policy and that of Air Quality Management District in stating; "The regulated community will justifiably be asking why they should come under more stringent emissions control requirements, when federal land managers are allowed to cause exceedances of the standards due to their inability to adequately control the smoke from their prescribed burns."

I was only moderately comforted to receive a letter from President Clinton regarding the implementation of the PM2.5 regulations, dated August 5, 1997, which stated in part; "With respect to particulate matter, these plans will ensure that no area of the country will be designated out of attainment with the new standard for at least five years." This means that we have a short-time to resolve some very evident problems in the current system. There are parts of Plumas County that have had difficulty meeting the PM10 standard and now we can not be certain which areas will have trouble with the new PM2.5 standard, even without the "let burn" national park policy and proposed increases in prescribed burning on national forests. However, with willingness to reduce current heavy fuel loads on our national forests prior to prescribed burning, consideration for changes in Park Service policies and possibly some flexibility in the NAAQS during the next 10 years of forest health transition, I believe that we can solve the dilemma.

Management of Prescriptive Natural Fires

I would like to address the Department of Interior fire policy, by using the Huffer Fire as an example. This is an issue that may be unique to those areas which include national parks that have adopted the old Yellowstone National Park "Let Burn Policy" under the more politically correct, "Management of Prescriptive Natural Fires" (MPNF). (Anything "natural" seems to win the heart and soul of our nation these days.) It may be unfair to call it the "old Yellowstone Policy", because there are more guidelines under the MPNF, however the natural fire ignition is not suppressed, until the fire exceeds certain guidelines. After a fire has gained momentum and is finally declared a wild fire, the blackened trail that it leaves, looks just like the old "let burn policy".

The July 30, 1997 lightning strike in the Lassen Volcanic National Park, which became known as the Huffer Fire, was managed under this policy that permitted the fire to languish for about 6 days during the most dangerous part of our fire season (August), and explode to a 1100 acre fire in a few hours. At that point, it was declared a wildfire and in the next couple of days, over 560 people dispatched along with 8 helicopters to suppress the Huffer Fire. After reaching a total of 2300 acres and a cost of $2 million ($870 per acre) the fire was contained. This serves as an example of both potential air quality conflicts and unnecessary natural resource and financial losses.

We have no reason to suspect that the local Park Service people mismanaged the fire; they were obligated to follow the policy. In addition, Forest Service District Ranger Mike Williams and LVNP representative Bryan Swift, kept me well informed on the fire details. Let me emphasize, it is the policy, not the those charged with implementation that needs review.

In an August 19 letter from the Plumas County Board of Supervisors to Congressman Herger, the following issues of objections to the policy were presented:

1) **It provides a great risk for increased resource damage in and outside of the park.**

Even though the policy permits the fire to burn only within certain prescribed areas and under specific conditions, the Huffer Fire is a good example of the unpredictability of wildfires, even though the agency wishes to view them as "natural."

2) **The smoke caused severe degradation of air quality.**

It had impact on the Redding, Lake Almanor, Honey Lake Valley, Greenville and Quincy areas.

3) **This federal policy is in direct conflict with the federal air quality policies.**

Whether we believe in letting our national parks burn "naturally", or not, there must be some consideration of two major conflicting federal policies, as noted earlier.

4) **The government has wasted millions of dollars that could have been put to better use.**

As an example, the Butte Lake campground, which was used for the main Huffer Fire camp has been closed to the public for several years, ***because of lack of federal funds.*** The estimated cost of $2 million for suppression costs of the runaway Huffer Fire could have opened the Butte Lake campground and many more.

5) **The actions reduced the fire suppression capabilities throughout the state.**

August is a critical time of the year for wildfires. Where the fire could have been contained by 2 people on July 30, it made little sense to let the fire grow to a size which required 560 people, 4 fire camps, and 8 helicopters, with the possibility that those resources could be needed on other wildfires that may have threatened life and property.

6) **The fire disrupted the "pristine" park experience for campers and hikers in Lassen Park and for tourists for many miles around.**

Tourism is very important to our rural communities; particularly now that our Forest Service timber sale programs have been reduced by 75%. There is little doubt that the proposed federal Regional Haze regulations were breached and the tourists **were not** happy.

7) **It has missed the original goal of reducing "fuel loading".**

Those trees that have been killed immediately will add to the forest floor fuel in the next 5 years. Additionally, because of the hot, August weather conditions, the ground fire will cause many more of the red fir trees to die during the next couple of years, adding an unnecessary accumulation of additional large fuel. Many believe that the fuel loading will now be greater than if the fire had been contained in the lightning struck snag and the old debris left in place. One park spokesperson indicated that it may be necessary to stage additional prescribed burns in the area, if that is a problem.

I have provided the obvious problems found in the results of "Management of Prescriptive Natural Fires" in this one incident. Certainly there can be some benefits, however under the conditions experienced in the Huffer Fire, they are not evident. Possibly the Park Service can provide them for you.

We understand the limitations for sound prescribed burning in national parks. They can not use mechanical means of removing, or manipulating wood fuel prior to burning. They can do hand work and **must be given** better criteria under which fires are permitted to burn, if they care to meet the concerns we have expressed and collectively, we are able to meet the new air quality standards.

Prescribed Burning on National Forests

Now, consider the problems and possibilities of prescribed burning on national forests. It is agreed by most everyone that due to effective fire suppression on national forest lands over the past 50 years we are faced with over-stocked, unhealthy forests that need serious management. Now, we are looking for a "quick-fix". There is none, including total dependence on the "natural feeling" provided by prescribed burns.

We know that fire must be reintroduced into our forests. However, there are too many people in the east, looking at fire use in the south, that believe we can implement the use of fire in the same manner in the west. The west is not the same as burning beneath the Loblolly Pines in Florida. The conditions are not the same. Due to our heavy fuel loads and weather patterns, there is a small window (without prior fuel load treatment,

probably one week per year in many forest stands) of opportunity for burning efficiently and effectively. Because of this, there is a very high risk of converting prescribed burns to large wildfires that may also endanger the lands and homes of others.

In addition, the NAAQS are not conducive to large burns. Considering that three adjoining forests in northern California may require the prescribed burning of 100-150,000 acres per year, how do we accomplish this without violating the PM2.5 regulation? The answer, in most cases again, is that we must first remove the large wood fuel volume.

Researcher Wallace Covington of Northern Arizona University is conducting studies that determine means of restoring ponderosa pine forests through fire reintroduction. He reported in a recent study that, before fuel conditions were introduced to a "normal" level in order to burn safely, he removed 5,500 board feet of merchantable timber and 58 tons of unmerchantable slash and duff from **each** acre.

In northern California, Wheelabrator Shasta Energy Company forester Steve Jolly estimates that 30-35 tons of material were removed from mixed conifer stands in preparation for prescribed burns.

The Forest Service answered "no" to question 084 by the House subcommittee on Forests and Forest Health during budget review, on whether or not prescribed burning would be used as a replacement of commercial timber harvesting. However, that was not the message that many received during the recent Lake Tahoe summit.

It was that concern about the future use of prescribed fire as the preferred method of restoring forest and range land health, which caused the coalition of "Western Communities for Safe and Healthy Forests to participate in the Tahoe Summit and issue several press releases in an attempt to gain better understanding of the final direction.

On Friday July 25, 1997 they noted that, " While prescribed fire has an important role to play, it can be dangerous, destructive and cause unacceptable high levels of air pollution. For example, if 10,000 acres per year are burned in the Tahoe Basin it would result in the dumping of 8,000,000 (million) pounds of smoke ash annually into Lake Tahoe." They continued, "To return Lake Tahoe forests to a safe and healthy condition, selective thinning must be implemented to reduce fuels, as a first step in the process, by treating 10,000 acres per year during the next two decades."

Even though the federal timber sale program has been reduced by 75% over the past 8 years, there are some who still resist any use of logging and therefore **will** offer prescribed burning as the preferred silvicultural treatment.

The resistance to the use of mechanical removal of wood fuel was noted recently by Dr. Patrick Moore, Founding member of Greenpeace and Chairman, Forest Practices Commission, Forest Alliance of British Columbia: "Many environmentalists convey the

simplistic, and wrong impression to the public that the choice is between preservation and devastation. The casualty in this war of words is truth--the new forest that grow back after logging is as beautiful in its own way as the one it replaced. The central myth that has been created in the war of words over the environment is that human activity is somehow 'unnatural'--that we are not really a part of nature but apart from it. The central teaching of ecology is that we are a part of nature and interdependent with it. All our acts are 'natural' in this sense." The point to be remembered is that logging and prescriptive fire must be used together.

Incidentally, it was such a war on words that caused the redefinition of the word "salvage" and further loss of removal of dead and dying trees which add to the fuel load of an unhealthy forest.

Richard Wilson, Director California Dept. of Forestry and Fire Protection has said, "We believe it is time to broaden the approach to cooperation on fire prevention and programs to reduce fuel loads, an approach we call 'pre-fire management.' " Director Wilson includes thinnings ahead of prescribed fires in most instances.

R. Neil Sampson, President of Sampson Group, Inc. noted in May/June article of California Forestry Association magazine, that "Fire introduction is supported by broad array of scientists, foresters and conservationists.....But it's not as easy as it sounds, and to simply propose lighting fires on most western forests is irresponsible and destructive."

A good example of prescribed burning, without prior removal, or manipulation of heavy ground fuels is shown by the recent photographs taken of the Coggins III prescribed burn on the Whiskeytown National Recreation Area, in Shasta County near Redding, California. The 5-10 tons per acre fuel loading that they were attempting to reduce, actually increased to 30-50 tons per acre as a result of the larger trees which were killed by the prescribed burn. (See photos 1-4)
Note the pitch pockets on the green pine tree, which indicates insect infestation. (photo 5). The fuel loading will be compounded further, as this tree and others die in the next two years from the results of the prescribed burning.
The solution would have been to remove some of the material mechanically, prior to the prescribed burn.

The same principle of reduced fuel load is used in burning rice fields in the Sacramento Valley of California. To reduce hazardous smoke, much of the rice stubble is removed before burning the fields. This must also be done in the woods through the use of understory thinning and removal of large volumes of the fuel loading for use in lumber and biomass. Through this procedure, we will utilize merchantable products, provide a financial return to counties and the federal government and provide funding for the prescribed burning which follows. At the same time we are protecting our watersheds and the quality and quantity of water depended upon by agriculture and citizens throughout our state.

Included, as backup material in my testimony is a copy of a news article, entitled **"Forest thinning pollutes less than fire"**. This timely article, speaks to the concerns of both the Huffer and Coggins III fires, which are under Department of Interior jurisdiction, but the principles apply to all land management.

An important part of the article, which is based on a technical paper by Buchanan and Keye, is that the biomass cogeneration industry, which was initiated in the 1970's as a means of reducing our dependence on foreign energy and to encourage nontraditional sources is still viable and can utilize the waste material. These cogeneration facilities convert the wood material to electricity and produce 97% less pollution than if the wood is consumed by prescribed burns.

Certainly you are familiar with the Quincy Library Group and H.R. 858, which the house passed 429-1. We thank you for that action and look forward to passage of the Senate version, so that forest management on the three involved national forests can begin. An important part of that plan, includes the very issues which I have been discussing. The Plumas County Board of Supervisors continue to be in 100% support of the QLG actions. They provide a blueprint for action on all of our national forests.

The Quincy Library Group Strategic Fire Protection Plan, supports prescribed burning. They advocate the management of the national forests based on thinning and biomass removal in a network of strips, that they believe, "..will more quickly reduce the risk of catastrophic wildfire and at the same time make suppression efforts against the remaining fires more effective and less costly."

This strategy will put the lands into a condition under which prescribed burns can be implemented. If the resulting smoke from these areas then do not meet the NAAQS, there will be reason to include prescriptive burns as a "natural" event and not part of the monitoring system. This may be reasonable, based on the trade-off that the air pollution is temporary and a means of minimizing costly wildfires in the future.

We suspect that this can only occur if Forest Service seriously sets goals for treatment, including the realistic cost estimates for all alternative management options, with specific reference to sequence of events. An example may be: a) mechanized removal of logs and biomass, b) spot, or jack-pot burning to remove potential hot-spots and "fire ladders", and finally c) broadcast prescribed burning.

The final report of the Federal Wildland Fire Management Policy and Program Review did not address the important answer to the question which their committee and others have raised; "How can we achieve cost effective, landscape scale integration of a variety of treatments for both natural and activity fuels?" They discussed monitoring and working with EPA and strengthening smoke management plans, during budget hearing questioning. They also indicated that, "As Hazardous Fuels Reduction program levels increase and burn windows are expanded, there will be additional project costs

associated with risk assessment and mitigation actions." However, it does not appear that they discussed how these "burn windows" of opportunity would be accomplished, nor what costs should be expected. Certainly, Congress will want more specific answers.

There are substantial data available to estimate the costs and returns of removing small material as logs and biomass during the "pre-burn" treatment. Both the Plumas and Lassen National Forests in Region 5 have good examples. The costs and benefits for alternative procedures must be part of the Smoke Improvement Plan. (SIP)

Additionally, if escaped prescribed fires are not charged to the budget, but rather to the emergency fund, the same as wildfires, there is less pressure to develop sound cost analysis. These accounting procedures need review.

In summary, as I have stated, we support the Quincy Library Group (QLG), with whom we work closely and strongly favor the reintroduction of fire into most of our ecosystems. We also agree with their analysis that at least five conditions prevent the immediate use of prescribed fire at large enough scale to address the hazard in our area:

1) The current high fuel loads make it too dangerous to use prescribed fire in any but the most favorable conditions, and even then it takes only a small weather change to put those out of limits. The hazard of an escape is too high to make increased use of prescribed fire a reasonable risk, without first reducing the fuel loads.

2) The continually reduced availability of expert fire managers makes it more difficult than ever to manage prescribed fire safely and effectively.

3) The historic rate of prescribed fire usage is about 10% of the treatment required and that accomplished has been in the least difficult terrain and with the least hazardous fuel. Therefore to increase prescribed fire by a factor of 5-10 would increase the risks substantially.

4) Major components of the current fuel load are unnaturally thick stands of small "fire ladder" trees that carry ground fires up into the crowns and kill large trees that would otherwise be nearly fireproof. These conditions can only be reduced by mechanical removal of wood fuels.

5) Significant increase in the use of prescribed fire comes into direct conflict with air quality standards as presently defined. In the long run this conflict must be addressed in a way that provides those benefits and processes that only fire can supply. Meanwhile, it will take at least a decade of thinning and other fuel treatment by non-fire means to make it feasible to employ prescribed fire at whatever level is found to be necessary for sustainable long-term forest health.

In summary, we share the urgency to reintroduce fire into our forest ecosystem. At the same time there are problems with prescribed fires on both national forest and national park lands and conflicts with NAAQS. We respectfully submit that the issues we have emphasized today are worthy of consideration before the Departments of Interior and Agriculture launch into the prescriptive fire program in northern California.
We wish to assist in a timely resolution of these conflicts and offer our cooperation in any way deemed appropriate by this committee, and the departments and agencies involved.

Our thanks to you, Mr. Chairman and the committee for permitting us to review these issues of importance, not only to Plumas County, but to many other areas throughout the west.

Supplemental Sheet

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P.O. Box 1519
Chester, CA
916/258-2058

After 5 p.m. 9/29/97 and until 9 a.m. 9/30/97
Holiday Inn, Washington On The Hill
415 New Jersey Ave. NW
Washington D.C.
202/638-1616

Topical Outline

A. **Support and Concerns** for reintroduction of fire into our national forests and parks ecosystems.

1. **Support**

a. Must be accomplished to develop healthy forests.

2. **Concerns**

a. Fire policies and the new National Ambient Air Quality Standard are two federal policies that represent the proverbial "two trains coming from different directions". When they collide, it will be individuals and businesses who suffer the consequences.

b. The current "management by prescriptive natural fire" policy in parks must be reviewed and criteria amended, based on recent air pollution and natural resource and financial losses from the 7/30/96, Lassen Volcanic National Park Huffer Fire.

c. Proposed EPA Regional Haze Regulations must now be reviewed on the basis of how they will impact current and future businesses, who EPA considers to be "the principal human-made sources of pollutants contributing to fine particles in the air".

c. Current fire loads in most northern California forests are too heavy to introduce prescriptive fire, without first removing substantial amounts of standing materials that act as "fire ladders" to the trees we wish to save.

3. **Remedies**

a. Thorough review of Dept. of Interior prescriptive burn policies in parks.

b. Reconsideration of EPA's Regional Haze Regulations.

c. Acceptance of the fact that reduction of fuel loading must occur before prescriptive fire is introduced on most national forests.

b. Flexibility in NAAQS implementation, during the 5-15 or more transition years, as we attempt to develop healthy national forests.

c. Determine who is ultimately in control of the switch, as the trains get closer.

STATEMENT OF ROBERT W. MUTCH
BEFORE THE
COMMITTEE ON RESOURCES
UNITED STATES HOUSE OF REPRESENTATIVES

OVERSIGHT HEARING
"USE OF FIRE AS A MANAGEMENT TOOL ON THE NATIONAL FORESTS"
SEPTEMBER 30, 1997

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

It is a privilege to appear before this Committee today to highlight the critical importance of linking silvicultural prescriptions with prescribed fire opportunities on a large enough scale to restore and sustain the health of fire-adapted ecosystems in the United States.

DOUBLE STANDARD SLOWS PRESCRIBED FIRE PROGRESS

Robert W. Mutch
Fire Management Consultant
Missoula, Montana

SUMMARY

A recent survey conducted by Forest Service research indicated that over five million acres are treated annually by prescribed fire in the United States, mostly in the South and Southeast. Purposes for using prescribed fire included hazard reduction, vegetation management, range improvement, wildlife habitat improvement, and other reasons.

But a double standard dramatically hampers our ability to prescribe fire on the landscape on a large enough scale to truly make a difference. Even five million acres is quite inadequate, especially in the West, where insufficient prescribed fire projects are conducted on large Federal holdings on an annual basis.

The double standard is one where practically any strategy can be adopted in suppressing a wildfire and vast amounts of money can be spent in implementing that strategy. No matter how adverse the outcome, politicians and the public generally side with the fire suppression specialist. A prescribed fire, on the other hand, can be well-planned and well-executed, but if anything starts to go awry the support from politicians, the public, and even internal colleagues, is quickly lost. This double standard is part of our tradition and culture, because the wildfire suppression decision is generously funded and essentially risk-free in the public arena, whereas prescribed fire implementation is much more closely scrutinized and carries a large risk. A few examples exist today where the double standard is being challenged and more latitude is being provided for prescribed fire.

The following "lessons learned" can be applied in dealing with the declining forest health problem in the western U.S.:

1. Most forest ecosystems (plants and animals) are adapted to fire.

2. It is not a question of if a fire will occur, but only when and where. There will be fire and there will be smoke.

3. Either pay now for a more balanced program of fire prevention, wildfire suppression and prescribed fire, or pay a dear price later due to escalating losses of people, property, and natural resources in uncontrollable wildfires.

4. Silvicultural and fire prescriptions must be integrated on a much larger scale to restore ecosystem health. This will require pre-commercial thinning and carefully planned cutting to restore stand densities and species composition that are sustainable into the future. Many stand conditions are so flammable today as a result of fire exclusion that prescribed burning without prior silvicultural treatment would be tantamount to igniting a conflagration.

5. Fortunately silvicultural cutting treatments designed to maintain healthy forests often will pay the way for follow-up hazard reduction burning.

6. The "buck needs to stop here." Risk for expanded prescribed fire projects must be shared among all stakeholders: agencies, politicians, and the public.

FIRE IN WILDLANDS

Periodic forest, grassland, and tundra fires are part of the natural environment–as natural and vital as rain, snow, or wind (Heinselman 1978). Evidence of past fires and their periodicity is found in charcoal layers in lakes and bogs; and in the fire-scarred cross sections of trees. Fire-adapted ecosystems that are found throughout North America are termed fire-dependent, if recurring disturbances by fire are essential to the functioning of these systems (Heinselman 1978). Numerous examples have been documented on how fire affects the functioning of ecosystems: regulating plant succession; regulating fuel accumulations; controlling age, structure, and species composition of vegetation; affecting insect and disease populations; influencing nutrient cycles and energy flows; regulating biotic productivity, diversity, and stability; and determining habitats for wildlife.

Lightning, volcanoes, and people have been igniting fires in wildland ecosystems for millenia. The current emphasis on ecosystem management calls for the maintenance of interactions between such disturbance processes and ecosystem functions. It is incumbent, therefore, on resource managers and fire managers to understand the historic frequency, intensity, and areal extent of past fires. Such knowledge provides a frame of reference for prescribing appropriate management practices on a landscape scale. Many studies have described the historical occurrence of fires throughout the world. Swetnam (1993), for example, reported on 2000 years of fire history in giant sequoia groves in California. He found that frequent small fires occurred during a warm period from about A.D. 1000 to 1300, and less frequent but more widespread fires occurred during cooler periods from about A.D. 500-1000 and after 1300. However, throughout the 2000 years of record fires occurred at intervals of less than 25 years, until the last century when agencies have been able to eliminate the pattern of frequent fires. Thus, several decades of attempted fire exclusion have threatened long-lived Giant Sequoia trees with fatal crown fires where the trees had co-existed previously for thousands of years with low intensity surface fires.

Swain (1973) determined from lake sediment analysis in the Boundary Waters Canoe Area in Minnesota that tree species and fire had interacted in complex ways over a 10,000 year period. There is an even larger body of science that details the numerous effects of wildland fires on ecosystems. It is this knowledge of fire history, fire regimes, and fire effects that allows managers to develop silvicultural prescriptions, fire prescriptions, and prescribed fire programs to achieve a variety of resource management objectives.

The role of fire as an important disturbance process has been highlighted in a classification of continental fire regimes (Kilgore and Heinselman 1990). They described a natural fire regime as the total pattern of fires over time that is characteristic of a region or ecosystem. Fire regimes are defined in terms of fire type and intensity, typical fire sizes and patterns, and fire frequency, or length of return intervals in years. Natural fire regimes of North America are placed into seven classes, ranging from Class 0 where fires are rare or absent to Class 6 where crown fires and severe surface fires occur at return intervals longer than 300 years. Intermediate fire regimes are characterized by increasing fire return intervals and increasing fire intensities. Class 2, for example, describes the situation for long-needled pines, like longleaf pine, ponderosa pine, and Jeffrey pine, where low intensity, surface fires occurred rather frequently (return intervals of less than 25 years). Lodgepole pine, jackpine, and the boreal forest of Canada and Alaska generally fall into Class 4, where high intensity crown fires occurred every 25 to 100 years; or into Class 5 where crown fires occurred every 100 to 300 years.

The noteworthy aspect of continental fire regimes for our consideration is that very few plant communities, or ecosystems, in North America fall into Class 0 where fires are rare or absent. In other words, most ecosystems in the United States evolved in environments where wildland fires occurred in a consistent manner, establishing fire as a process that affects the numerous ecosystem functions described earlier. The application of prescribed fire for many different purposes has attempted to mimic the natural role of fire in producing fire-related ecosystem effects. Our problem, as we shall see later, is simply one where we have not used enough prescribed fire on a large scale to sustain the productivity of fire-adapted ecosystems.

DECLINING FOREST HEALTH

Numerous ecosystem indicators, however, from the Southeast to the West are presenting alarming examples of declining forest health. Attempted fire exclusion practices, prolonged drought, and epidemic levels of insects and diseases have coincided to produce extensive forest mortality, or major changes in forest density and species composition. Gray (1992) called attention to a forest health emergency in parts of the western United States where trees have been killed across millions of acres in eastern Oregon and Washington. He indicated that similar problems extend across a much larger area south into Utah, Nevada, and California, and east into Idaho. Denser stands and heavy fuel accumulations are also setting the stage for high intensity crown fires in Montana, Colorado, Arizona, New Mexico, and Nebraska, where the historical norm in long-needled pine forests was for more frequent low intensity surface fires (fire regime Class 2).

Since the 1980's, large wildfires in dead and dying western forests have accelerated the rate of forest mortality, threatening people, property, and natural resources (Mutch 1994). These wildfires also have emitted large amounts of particulate matter into the atmosphere.

One study (Hardy and others 1992) estimated that more than 53 million pounds of respirable particulate matter were produced over a 58-day period by the 1987 Silver Fire in southwestern Oregon! Yet wildfires are generally looked upon as exceptional events by the Environmental Protection Agency, and are outside their purview as they promulgate clean air strategies. These wildfires, however, can no longer be considered exceptional events. More than 50 years ago Weaver (1943) reported that the "complete prevention of forest fires in the ponderosa pine region of California, Oregon, Washington, northern Idaho, and western Montana has certain undesirable ecological and silvicultural effects...conditions are already deplorable and are becoming increasingly serious over large areas." Also, Cooper (1961) stated that "fire has played a major role in shaping the world's grassland and forests. Attempts to eliminate it have introduced problems fully as serious as those created by accidental conflagrations."

Some have said that we have been engaged in a "grand ecological experiment" as we attempt to exclude fire from fire-adapted ecosystems. Even in the southeastern United States where the majority of prescribed burning is conducted, a recent report indicated that there were 90 million acres of longleaf pine during the late nineteenth century. Current inventories accounted for 2.9 million acres of longleaf pine today; and projected that longleaf pine was being lost at the rate of 100,000 acres a year. One reason attributed to this decline was the absence of fire, contributing to a type conversion to hardwoods.

WILDFIRE SUPPRESSION

The clarity of hindsight might move some to question resource management agencies for their slowness in responding to clear warnings that were sounded in the 1940's and 1960's by people like Weaver and Cooper. But that would be a simplistic assessment for a complex situation. Resource management and fire management policies, regulations, and practices evolve gradually over time and are affected by many internal and external expectations. The external expectations may come from society at large, politicians, and regulatory agencies. Many of the early internal and external expectations were founded on the calamities brought about by catastrophic fires in the late 1800's and early 1900's. Wildland fires were viewed as the enemy to be eradicated from the forests, not as a natural disturbance process with many benefits. The several era's of fire control and fire management from then to now have been carefully traced by Pyne (1982). So it is not really surprising in the aftermath of the extensive 1910 wildfires that an organizational culture developed that emphasized fire suppression programs over prescribed fire programs; program emphasis that was universally accepted by society and politicians. But in the intervening decades since 1910, a large body of scientific knowledge has developed regarding fire history, fire regimes, and fire effects; the decline in the health of ecosystems has reached alarming proportions; and large, high intensity wildfires are increasing in numbers since the mid-1980's.

PRESCRIBED FIRE

How widespread is the use of prescribed fire, fires designed to produce beneficial results, in the United States today? A recent survey (Ward and others 1993) indicated that over five million acres are treated annually by prescribed fire in the United States. Over 70 percent of all prescribed burning, or about 3.5 million acres, was in the Southeast. Purposes for using prescribed fire included hazard reduction, silviculture, wildlife habi-

tat improvement, range improvement, vegetation management, and other reasons. The survey lumped such prescribed burning reasons as watershed management, pest control, disease control, and research in the category called "other". A category apparently not covered in the survey was the use of prescribed natural fire in national parks and wildernesses to perpetuate fire-dependent ecosystems. Many national parks and wildernesses across the United States have approved plans that allow lightning fires to burn when all prescription criteria have been met. Some of these individual prescribed natural fires have been 10-15 thousand acres or larger in size in the Rocky Mountains. Whether prescribed fires are ignited by managers or by natural causes, all prescribed fire plans include criteria for burning in such a manner to minimize impacts on air quality. Resource management agencies and private timber companies cooperate with State Air Quality Bureaus to prescribe burn in a way that reduces adverse effects on human health and visibility.

We can see from this survey that prescribed burning practices are concentrated in the southeastern states. Also, although 5 million acres burned annually appears to be a large number, foresters and ecologists are projecting a much greater need for prescribed fire in the future to maintain, or restore, the health of fire-adapted ecosystems.

A DOUBLE STANDARD

A change in direction is clearly indicated–and that change has been embodied in the concept of ecosystem management where we attempt to sustain the productivity of all components of ecosystems, allowing society to enjoy the by-products of healthy systems. As we already have noted, recurring fire is an integral disturbance process to the functioning of fire-adapted ecosystems. But a double standard is impairing our ability to prescribe fire on the landscape on a large enough scale to truly sustain healthy systems. The double standard is simply one where practically any strategy can be adopted in suppressing a wildfire, any amount of money can be spent in implementing that strategy, and any outcome can be realized from good to bad. No matter how adverse the outcome (including the burning of 200,000 acres and the destruction of over 1000 homes in southern California in 1993), politicians and the general public will support the fire suppression specialist. A prescribed fire, on the other hand, can be well-planned and well-executed by qualified people, but the moment something goes awry the support from politicians and the public, and even internally, is quickly lost. The reprisal is generally immediate because the agency started the fire and it is their fault if something goes wrong. This double standard is part of the tradition and culture of many wildland fire management agencies, since the wildfire suppression decision is generously funded and essentially risk-free in the public arena.

The double standard even carries over into the way that regulatory agencies address wildland fire programs. Thus, the wildfire and its smoke are considered "natural events" by the Environmental Protection Agency, and are not as stringently regulated as prescribed fires to achieve clean air standards. We have learned by now that it is not a question of if we are going to have wildland fires, but simply a matter of when and where. And the wildfires are occurring at increasing frequencies and intensities, producing large volumes of smoke over extensive areas. Wildfire smoke is the bad smoke. This doesn't mean that prescribed fire smoke is good smoke, but it may be better smoke if emissions can be timed to mitigate the future production of unregulated wildfire smoke. Residents of the

wildland/urban interface, air and water quality regulators, endangered species specialists, and resource managers need to plan for the "when" of fire occurrence.

An enlightened tolerance on the part of all sectors of society needs to accommodate prescribed fire on a landscape scale, coupled with other management practices, as part of the solution in sustaining healthy ecosystems to benefit people. This will require confronting the numerous barriers imposed either directly or indirectly by the double standard, and seeking appropriate solutions that better balance essential and strong fire suppression programs with equally well-supported prescribed fire programs. The list of elements receiving preferential treatment under the double standard is a varied one: liability, air quality, water quality, threatened and endangered species, risks, and funding. In most cases these considerations due not hamper operational practices in suppressing a wildfire. But this very same list can pose distinct barriers to prescribed fire practices.

NEW INITIATIVES

There are some breakthroughs today, however, in providing more latitude for expansive prescribed fire programs. The state of Florida, for example, has enacted innovative legislation that provides more protection for the prescribed burner in terms of liability. A cooperative program in Oregon among federal and state agencies is developing a fire emissions tradeoff model to predict the smoke emissions produced from prescribed fires and wildfires in the Blue Mountains of northeastern Oregon (USDA Forest Service 1993). The ultimate goal of this effort is to implement a level of prescribed burning that minimizes total smoke emissions. The Western States Air Resources Council (WESTAR), a non-profit association of air quality agencies in the fourteen western states, has drafted an initiative called "Forest Health Initiative to Restore Ecosystems" (FIRES). WESTAR's intent of FIRES is to "address forest health-air quality technical and policy issues of concern to Congress, the western state air regulators, federal land management agencies, and the public" (WESTAR 1994). The goal of the three year project is to bring together a broad-based consortium to develop regional solutions based on strong science to balance the needs of forest health while protecting air quality. All of these initiatives and others are providing more latitude for prescribed fire programs to evolve in a more supportive environment. Obviously two additional elements that need to be better resolved are the important issues of sufficient funding and the better sharing of risk by all stakeholders. Some progress is being achieved here as well.

Because many stands are now excessively dense and contain many dead and dying trees (Mutch and others 1993), sanitation and salvage, thinning, and partial cutting may be necessary before initiating extensive prescribed burning programs. In other situations resource managers and fire managers have been able to proceed with landscape scale prescribed burns: a 16,000 acre prescribed fire on the Santa Fe National Forest in April 1993, a 1,000 prescribed fire on the Boise National Forest, a 700 acre prescribed fire for wildlife winter range and forest health on the Lolo National Forest in April 1994, a 6000 acre prescribed fire on the Umatilla National Forest in 1994, and a 5000 acre aerially ignited crown fire on the Tetlin Wildlife Refuge in Alaska in 1993. Managers are clearly beginning to apply prescribed fire on scales large enough to produce some meaningful ecosystem effects.

Concern over another severe fire season in California in 1993 led to the establishment of a special interagency Fire Strategies Team in June 1994. The Team was composed of 13 different state, federal, and local fire and resource agencies, as well as 11 other private and local participants with diverse interests in watershed, fire, and environmental issues. The vision of the Team is to develop strategies to change the historical pattern of spending millions of dollars extinguishing large, damaging fires to a more balanced fuels and pre-fire management program (Board of Forestry 1995). Key goals of the Team are to achieve a sustainable ecosystem and the maintenance of healthy forests while providing defensible space for the protection of life and property.

Resource management agencies, regulatory agencies, politicians, and society have a challenging opportunity to implement meaningful resource management and fire management programs at a scale large enough to truly sustain the health of fire-adapted ecosystems to benefit people, property, and natural resources. This will require cooperation and consensus-building at a level never before experienced in resource management. People need to move away from litigation and the courtroom as strategies for managing natural resources. The emphasis now should be devoted towards the decades of research results that provide the basis for managing ecosystems more in harmony with disturbance factors to foster the health, resilience, and productivity of wildland ecosystems. Examples already exist where the double standard is being confronted and prior obstacles are being converted into opportunities for success. We simply need to build on those successes.

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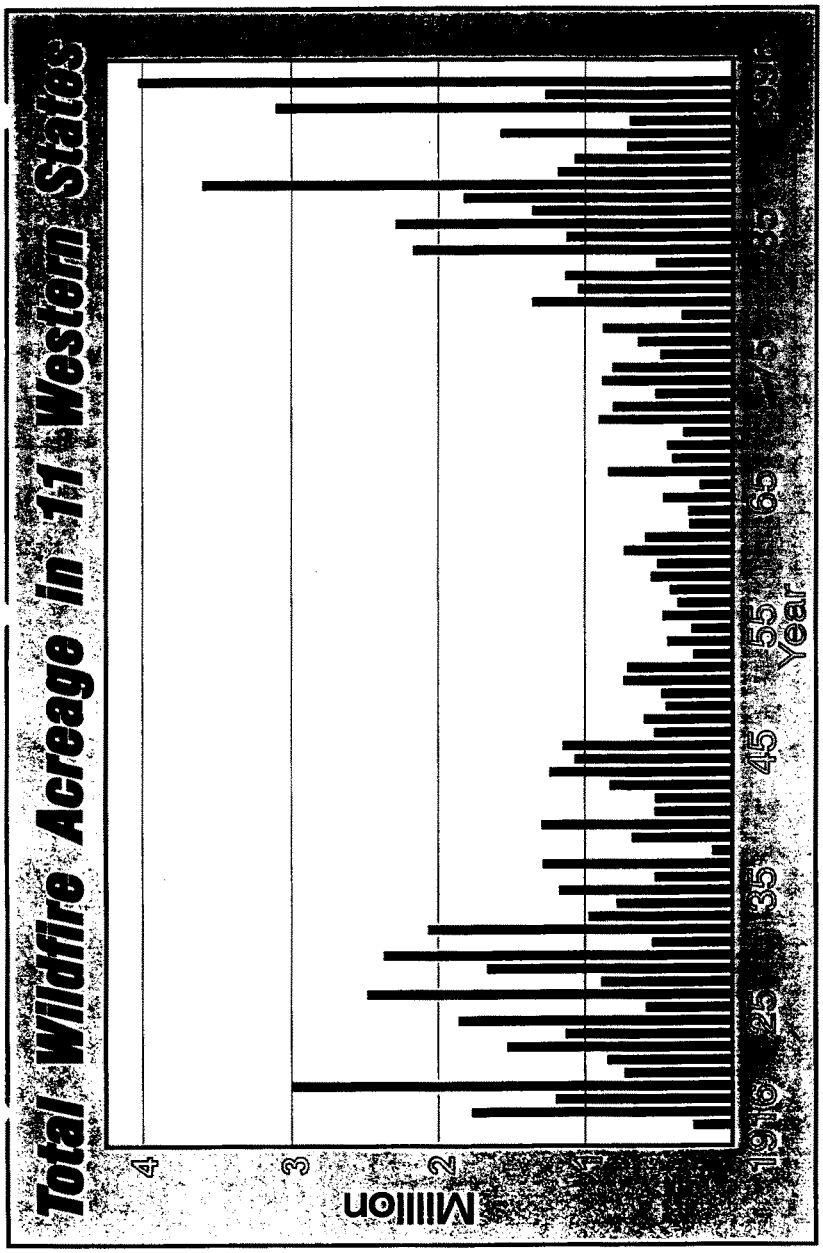
Mr. Chairman, this concludes my written statement; and I thank you again for the opportunity to participate in this important Hearing.

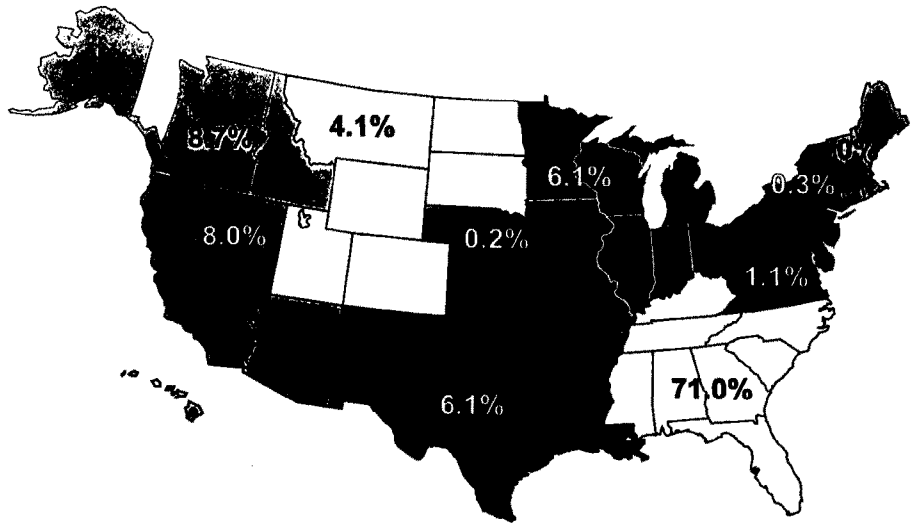

Total Wildfire Acreage in 11 Western States
Million
4
3
2
1
0
1910
25
35
45
55
65
75
85
95
Year

Primary Reasons for Rx Burning in the United States (1989)*

Fire hazard reduction	64.1%
Silviculture	17.9%
Vegetation management	2.5%
Range improvement	1.2%
Wildlife habitat	9.8%
Other	4.5%

*From Peterson et al. (1993)

Percent of Total Area Rx Burned In 1989, By EPA Region*



*From Peterson et al. (1993)

Area Managed

BLM	272 million acres
FS	191 million acres
FWS	92 million acres
NPS	81 million acres
BIA	61 million acres

Prescribed Fire (acres)

	Now	2,000
BLM	70,000	150,000
FS	450,000	1,500,000
NPS	250,000	500,000
FWS	200,000	205,000

SUPPLEMENTAL SHEET

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STATEMENT SUMMARY

Wildland fires are an integral part of many ecosystems across North America; and these ecosystems often exhibit adaptations to periodic fire. These fire-adapted ecosystems are often termed fire-dependent, if recurring disturbances by fire are essential to the functioning of the system. Lightning, volcanoes, and aboriginal people sustained a continuing interaction between wildland fires and ecosystems over eons of time. Scientists have studied the fire history record by analyzing the charcoal stratigraphy of lake sediments and dating the intervals between fire scars on trees. These studies and others have helped guide the development and implementation of prescribed fire programs to achieve a wide variety of resource management objectives. A recent survey indicated that over five million acres are treated annually by prescribed fire in the United States, mostly in the South and Southeast. Purposes for using prescribed fire included hazard reduction, silviculture, vegetation management, range improvement, wildlife habitat improvement, and other reasons.

But a double standard dramatically hampers our ability to prescribe fire on the landscape on a large enough scale to truly make a difference. Even five million acres is quite inadequate, especially in the West, where insufficient numbers of prescribed fire projects are conducted on large federal holdings on an annual basis.

The double standard is one where practically any professional strategy can be adopted in suppressing a wildfire and vast amounts of money can be spent in implementing that strategy. No matter how adverse the outcome, politicians and the public generally side with the fire suppression specialist. A prescribed fire, on the other hand, can be well-planned and well-executed, but if anything starts to go awry the support from politicians, the public, and even internal colleagues, is quickly lost. This double standard is part of our tradition and culture, because the wildfire suppression decision is generously funded and essentially risk-free in the public arena, whereas prescribed fire implementation is much more closely scrutinized and carries a large risk. A few examples exist today where the double standard is being challenged and more latitude is being provided for prescribed fire.

The following "lessons learned" can be applied in dealing with the declining forest health problem in the western U.S.:

1. Most forest ecosystems (plants and animals) are adapted to fire.

2. It is not a question of if a fire will occur, but only when and where. There will be fire and there will be smoke.

3. Either pay now for a more balanced program of fire prevention, wildfire suppression, and prescribed fire, or pay a dear price later due to escalating losses of people, property, and natural resources in uncontrollable wildfires.

4. Silvicultural and fire prescriptions must be integrated on a much larger scale to restore ecosystem health. This will require pre-commercial thinning and carefully planned cutting to restore stand densities and species composition that are sustainable into the future. Many stand conditions are so flammable today as a result of fire exclusion that prescribed burning without prior silvicultural treatment would be tantamount to igniting a conflagration.

5. Fortunately silvicultural cutting treatments designed to maintain healthy forests often will pay the way for follow-up hazard reduction burning.

6. The "buck needs to stop here." Risk for expanded prescribed fire projects must be shared among all stakeholders: agencies, politicians, and the public.

Dr. Robert L. Pearson

Mr. Chairman, and members of the Committee.

My name is Dr. Robert Pearson. I am an air quality scientist and Project Manager at the Denver office of Radian International, an environmental consulting firm. I am also a adjunct professor of air pollution in the graduate school of the University of Colorado at Denver.

I am appearing before you today to discuss the air quality impacts of the practice of using prescribed burns to reduce vegetation in our nation's forests.

First a short bit of history. I have practiced as a scientist in the area of air pollution for all of my career, lasting some 25 years. In 1992, Governor Romer of Colorado appointed me to be a representative of Colorado on the Public Advisory Committee of the Grand Canyon Visibility Transport Commission. The Commission, made up of the governors of eight states and representatives of several Indian tribes, was established by Congress in the 1990 amendments to the Clean Air Act. The Commission was to recommend to EPA ways of reducing man caused visibility impairment in and near the Grand Canyon. The Public Advisory Committee was charged with reviewing the man caused impact to visibility in the Grand Canyon and other Class 1 national parks and wilderness areas in the West and making recommendations to the Commission on preventing and remedying such impact.

We spent four years reviewing the science that had been collected on this subject including new visibility data gathered for the Commission. We then formulated policy recommendations for the Commission to consider. Throughout the conduct of this scientific study, every interest group was represented including environmental groups and the Federal land managers of the Forest Service, the Bureau of Land Management and the National Park Service.

On June 10, 1996, the Commission published its findings in a report titled "Recommendations for Improving Western Vistas". This report discusses in detail the scientific study that was done and the recommended control strategies for all of the categories of sources of air pollution located throughout the West. One area of much study and discussion by the Commission was the subject of today's hearing, the impact on regional haze in Class 1 areas from the use of fire in forest management, commonly called prescribed burning. I am here today to relate the some of the information we learned as we struggled to craft a workable regional haze improvement plan for the West.

Forest fires, either intentionally set or accidental, release quantities of fine particles made of carbon and other elements in the smoke. These fine particles cause several impacts on air quality. First the concentration of fine particles in forest fire smoke may cause the PM 2.5 National Ambient Air Quality Standard recently adopted by EPA to be violated near the fire. In addition, the fine soot particles in the smoke will affect visibility by both scattering and absorbing light.

At times smoke containing fine particles travels hundreds of miles and across several states. I can vividly remember seeing the effects in Denver of several California wildfires and also the 1988 Yellowstone fires. These effects were much reduced visibility and a smoke smell in the air. While I do not have air quality measurement data from these times, I am sure the concentration

of fine particles was elevated for several days each time even at the considerable distance that the smoke traveled to get to Denver.

During the Commission study of western regional visibility, we also saw photographs taken at Hopi Point at the Grand Canyon when a small wild fire on the South Rim of the Canyon was brought under control and extinguished. Even such a small fire, which lasted only a few hours, filled the Canyon with smoke. The point is that even a small fire in or near a Class 1 area can cause dramatic effects on visibility and the concentration of fine particles in the air similar to the effects seen at long distances from large fires.

The Federal Land Managers, the Forest Service and the National Park Service in particular, told the Commission that they intend to dramatically increase the number and extent of prescribed fires over the next several years to "catch up for many decades of fire suppression" by reducing the amount of fuel available to be burned by wild fires in the nation's forests. The Commission analyzed the effects of this increased use of fire as a forest management tool and concluded that the effects on regional visibility could easily wipe out the gains made by all other source categories combined (see slides 1 and 2). These other source categories, which are reducing emissions, include power plants, copper smelters, cars, trucks and area sources of fugitive dust. Note that the Commission combined all fires, both man caused and wild fires, into the "natural category" for our analysis (slide 3). Such natural causes contribute almost half of the visibility impairment in the West. To some extent, then the report is biased by considering smoke from intentional man caused fires as "natural." This also in effect exempts the smoke from prescribed burns from being considered against your goal in the Clean Air Act of remedying man caused sources of visibility impairment. The point is that all of our hard won incremental improvements in regional visibility across the West could be overwhelmed by the increased use of fire as a land management tool by the federal land management agencies even though their contribution is considered "natural" (see slide 4).

One other point needs to be made in this regard. The EPA has recently proposed a set of regulations to protect and improve regional visibility in the US. One provision of current law as well as the proposed rules allows the federal land manager of a Class 1 area to identify a source or some group of sources some distance away which could be impacting visibility in the Class 1 area. The state in which the source is located would then be required to evaluate the allegedly offending source(s) for the retrofit of air pollution control technology equipment to reduce the effect on the Class 1 area. In effect, this gives the federal land manager land use control over lands outside of the wilderness area despite the fact that wilderness legislation passed by Congress specifically prohibits the establishment of buffer zones around wilderness areas.

The Federal land managers have the authority to trigger clean up activities on all other sources while at the same time increasing their own air pollution activities through increasing prescribed burns. This apparent "do as I say not as I do" philosophy of the federal land managers suggests a double standard for allowing federal agencies to emit fire smoke at will, but at the same time requiring others to spend large sums of money to reduce their emissions even a small amount.

While this scenario may sound far fetched, it has been going on for some time in Northwestern Colorado. The Forest Service, manager of the Mount Zirkel Wilderness Area accused the Hayden Power Plant of polluting the wilderness area some 30 miles away. The State of Colorado Health Department along with the Forest Service and the Colorado utilities conducted a $3 million scientific study to determine the sources of visibility impact in the wilderness area. The recently released results of the study showed that the Hayden power plant was only a minor contributor to visibility impairment in the wilderness. Despite this evidence, the source owners have committed to spending over $100 million to reduce the emissions from the plant. All the while, the Forest Service can go ahead and conduct prescribed burns or allow wild fires to burn at will to reduce forest fuel levels in and near the wilderness area. The other Federal land managers of the BLM or Park Service can take the same approach in other areas.

Fires also release carbon in the form of carbon dioxide, a green house gas to the atmosphere. It is ironic that in these days of increasing concern over global warming, the federal land managers are proposing to release, through fire management, large quantities of CO_2 to the atmosphere. This action will not only release the stored carbon from the forest, it will also diminish the ability of the nation's forests to store carbon in the future. This is another example of the use of fire as a forest management tool being at cross purpose with international concerns of global climate change.

While I am extremely concerned that prescribed burns will hamper and even possibly prevent our attainment of the goal Congress set of remedying man made causes of visibility impairment in the West, I recognize that forest fires can and will continue to occur. Federal land managers must take action to reduce the level of fuel available in the nations forests for wild fires to consume. I am not convinced, however, that prescribed burns are the only tools at their disposal for this purpose. Other techniques such as logging and mechanical removal can and should be selectively used to reduce the amount of fuel available for fires. When prescribed fire is indeed the only available option, the land managers should only use it when conditions are right for burning with little smoke being produced which will affect visibility in and near Class 1 areas. Only then can we have some hope of achieving cleaner air in our Class 1 areas.

We must all work together to see that the goal you as members of Congress have set for us to improved visibility is achieved. I am extremely concerned that federal land managers have chosen to point the finger at others while ignoring the obligation they themselves have to protect the air quality in areas they have been charged to protect. Until land management agencies recognize this responsibility and factor it into their day-to-day land management practices, will we see the benefits of improved air quality in our Class 1 areas throughout this country.

Thank you.

The Grand Canyon Visibility Transport Commission

Final Report

Recommendations for Improving Western Vistas

June 10, 1996

Slide 1

Annual Average Prescribed Fire/Wildfire Visibility Impacts in Mm^{-1}

Year	Prescribed Fire Baseline	Prescribed Fire with Maximum Controls	Wildfire
1990-2000	0.3 - 0.5	NA	0.1 - 1.0
2010	1.5 - 2.0	1.4 - 1.7	0.1 - 1.0
2040	1.6 - 2.2	1.4 - 1.9	0.1 - 1.0

[1] Seasonal impacts may be 2 to 3 times higher than the annual averages shown here

Grand Canyon Visibility Transport Commission Final Report, page 86.

Slide 2

Projected Annual Average Aerosol Extinction at Hopi Point

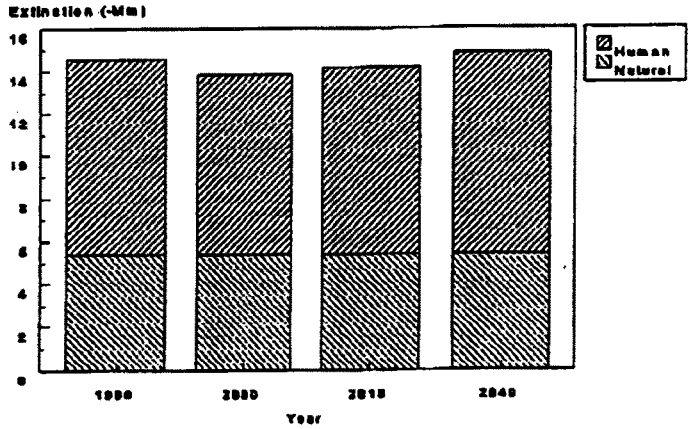


Figure II-3

The total aerosol extinction is made up partly of natural aerosols and partly of human-caused aerosols.

Note: Fires are estimated in this graph as part of aerosol natural background.

Slide 3

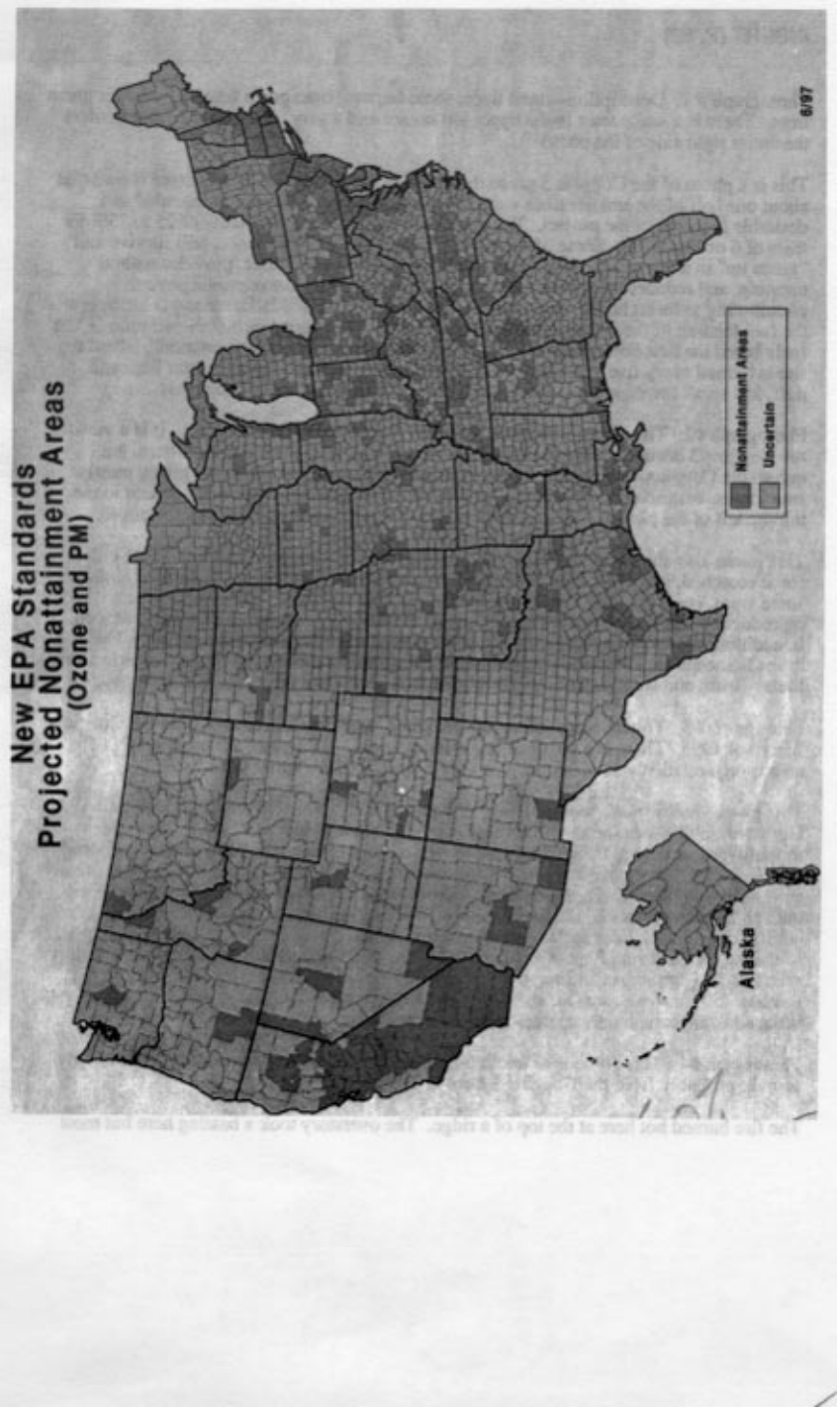
The Visibility Impacts of Fire Could Overcome the Combined Visibility Benefits From All Other Visibility Control Programs in the West:

"The commission's models indicate that emissions from fire, both wildfire and prescribed fire is likely to have the single greatest impact on visibility at Class I areas through 2040."

"Current modeling indicates that, at certain times, increased visibility impairment from fire is likely to exceed the potential visibility improvements associated with other Commission recommendations."

Grand Canyon Visibility Transport Commission Final Report, page 85

Slide 4


New EPA Standards
Projected Nonattainment Areas
(Ozone and PM)
Nonattainment Areas
Uncertain
Alaska
6/97

INSERT (P. 82)

Photograph # 1. Description--small trees, some brown, some green framed by larger green trees. There is a white snag in the upper left corner and a very large white fir that borders the entire right side of the photo.

This is a photo of the Coggins 3 prescribed burn of 1996 October. The picture shows that about one half of the smaller trees were killed by the burn. This was an intended and desirable outcome of the project. The objectives were to create mortality of 25 to 75% for trees of 6 or less DBH. Some of these trees, especially the larger ones, will survive and "green up" in a few years. Small tree mortality reduces ladder fuels, provides natural thinning, and reduces competition for water and nutrients for the remaining trees, contributing to forest health. It is true that dead small trees will fall over and contribute to the fuel loading of the site, but this is an entry burn. The second burn will consume ladder fuels killed the first time. Then the site will be part of a "maintenance rotation", where the site is burned every five years or so with low intensity surface fires to reduce litter and duff, kill small brush, shrubs, and reproduction thickets, and recycle nutients.

Photograph #2: This photo was probably taken from the Crystal Creek Rd. It is a view of the Coggins 3 north line, and the Coggins 4 south line, after the Coggins 3 burn, but before the Coggins 4 burn. It is a picture of mostly green trees and a few pines, mostly small trees, with scorched crowns. The scratch line between the two units is seen in the middle left of the photo. Decomposing granite is interspersed in the top of the photo.

This photo also shows the desirable mosiac of green and brown small trees, some killed, some scorched, and some with little fire damage. The burn (Coggins 3), burned hotter in some areas, cooler in others, opening the canopy here and there, and reducing the reproduction thickets of small trees. Many of the comments above fit this photo as well. In addition, the scorching larger trees can be viewed as an "innoculation to fire". The lower branches are killed and eventually fall off, reducing their threat to the tree as ladder fuels. Brush and small trees are killed under them, reducing the threat of future fires.

Photograph #3: This photo is of mostly fire killed small trees, probably from the Coggins 2 burn of 1995. There is a tall dead tree dominating the left side of the photograph. The area is on a relatively small slope, probably at the top of the burn by the road.

This photo shows small tree mortality, again a generally desirable effect of the burn. However, in this location the fire probably burned somewhat hot, causing excessive mortality, especially to the large tree on the left side. We try to limit our overstory mortality to 5% or less. Prescribed burning consumes snags, so by creating a few snags we actually create wildlife habitat. These trees will fall down, add to the fuel loading for a few years, but again, this was an initial treatment burn. The second burn in about five years will consume the dead ladder fuels. Fire burns in a mosaic pattern, hotter in some areas, cooler in others. We can supply photos where the entire overstory, small and big trees, were left green. Also, ponderosa and sugar pines can survive significant crown scorching. Trees that are 75% crown scorched, i.e., 3/4 of canopy singed brown, can survive. It sometimes takes several years, but these trees recover.

Photograph #4: This photo is of about 6-8 moderately sized trees with significant canopy scorch, probably from the Coggins 3 burn of 1996.

The fire burned hot here at the top of a ridge. The overstory took a beating here but most

of the trees here are small. This is probably one of the hottest areas of Coggins 3. Prescribed burning is not an exact science. Areas of the burn unit will exceed desirable fire effects. This is one of them. But taken as a whole, this burn met objectives.

Photograph #5: This is a closeup of the trunk of a pine tree. Its location cannot be determined. There are globs of orange pitch on the sides of the trunk.

We are unable to locate this photo. The pitch may or may not be related to the burn. Fire damaged pine trees can be more suseptible to insect invasion. Seeping sap indicates this tree survived the burn, and as it ages the bark will thicken and the tree will become even more fire resistant.

Photographs #6 and #7: These photos are of the same subject--smoke during what appears to be the Coggins 4 RX.

This smoke is the result of leaf litter, duff, brush, and downed and dead fuels being consumed, which is a desirable effect of burning. The smoke is being carried to the west--away from Redding, French Gulch, and virtually all populated areas, as planned before ignition. Smoke will occur while burning. Proper planning can minimize its effects on populated areas. The duration of smoke of this intensity was 3 days. Wildfires can burn like this for weeks.